

1 BEFORE THE CITIZENS' ENVIRONMENTAL SAMPLING COMMITTEE
2 COLORADO DEPARTMENT OF HEALTH

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4 REPORTER'S TRANSCRIPT OF PROCEEDINGS
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7 PURSUANT TO NOTICE to all parties in
8 interest, the above-entitled matter was called to
9 order at 8:30 a.m. on October 4, 1993, before James
10 La Velle, Ph.D., Chairman, and the assembled members
11 of the committee; said proceedings having been
12 reported in shorthand by James L. Midyett, Certified
13 Shorthand Reporter.

14
15 COMMITTEE MEMBERS PRESENT:

16 James La Velle, Ph.D.	Norma C. Morin, Ph.D.
17 Ann Lockhart	Nancy Hunter
18 Hank Stovall	Gale Biggs, Ph.D.
19 Paula Elofson-Gardine	Niels Schonbeck, Ph.D.
20 Bini Abbott	Tony Harrison
21 Terrol Winsor	Ward Whicker, Ph.D.
22 Todd Margulies	Robert Meyer, Ph.D.

23 WHEREUPON, the following proceedings
24 were had:

25 Best Available Copy

ORIGINAL

1 PROCEEDINGS

2 CHAIRMAN LaVELLE: Well, good
3 morning. Why don't we go ahead and get started.

4 We do have an agenda. I guess
5 everybody has a copy of it. We decided that maybe we
6 would go through some of the factual stuff, first --
7 and hopefully fairly quickly -- and then spend the
8 bulk of the time talking about sampling objectives
9 and get into a discussion of analytes, detection
10 limits, sampling methods, those sorts of things as
11 time permits. But I think the -- the key is to get
12 the objectives nailed down as best we can today and
13 then start on our sampling methodology.

14 So if that's okay with everyone . . .

15 (No response.)

16 CHAIRMAN LaVELLE: Good. We'll start
17 off and we'll let Todd -- let's see -- oh, there he
18 is -- talk about a little bit about what he's been
19 able to accomplish between now and the last meeting.

20 So, Todd, why don't you go ahead.

21 MR. MARGULIES: Good morning,
22 everyone. I've gotten quite a bit accomplished since
23 the last time we met.

24 A quick and dirty update: Terrol
25 Winsor and I went up and took a look at the sites

1 that Gale Biggs proposed, the Milliken site, the
2 Platteville site, the Front Range Community College
3 site, and then the Erie site.

4 I then met with Gale after doing that,
5 and he was happy with two of the three. He did ask
6 if I would go back up and take another look at the
7 Milliken site and look a little bit to the east and
8 to the north, near Gillcrest.

9 The site that Terrol and I had looked
10 at in that area was up on what was called Wildcat
11 Mound, and Gale felt that we should try and find
12 something a little bit lower that possibly would have
13 a better chance of seeing some of the air stagnate
14 and have some of the things drop out. So I will be
15 going back up there. I've got to go back up in that
16 area to go into their County Assessor's office
17 anyway, so it's not like an extra trip; I did have to
18 back up there. I did make it up there. I was very
19 appreciative to Terrol for coming along; his
20 assistance was quite valuable, trying to look around
21 the dumps to find someplace that would be a little
22 less disturbed.

23 Another site that I looked at, Hank
24 Brown met with me and we went over -- that was the
25 Front Range Community College site.

1 MS. ABBOTT: The Hank Brown?

2 MR. MARGULIES: Stoval, I'm sorry.

3 Hank Stoval.

4 MS. ABBOTT: Oh, all right.

5 MS. ELOFSON-GARDINE: Right, jeez; he
6 didn't do any work.

7 MR. MARGULIES: Hank Brown came a
8 along, too -- no, just kidding -- Frank Stovall.

9 And for your information, Gale, where
10 the Federal bends around and forms that dike or berm,
11 if you will, we were able to locate two areas of
12 potential -- and I can show you those after we get
13 done here -- one is real close to that corner; there
14 is an old house with maybe a quarter of an acre that
15 looks like it's been left for quite some time.

16 In addition, if you go right behind
17 Front Range Community College, there is a little open
18 space area that looked like it had potential, as
19 well. So there are two potential sites in that area
20 that would, I think, serve to go along with the
21 criteria that you had mentioned. So it looked real
22 good.

23 MS. ELOFSON-GARDINE: Todd, did you
24 find out about which area they remediated for the PCB
25 contamination?

1 MR. MARGULIES: No, ma'am, I did not.
2 Now, that's in and around Front
3 Range?

4 MS. ELOFSON-GARDINE: (Nods head.)

5 MR. MARGULIES: I had no idea where
6 that is.

7 If you walked -- is it the Big Dry
8 Ditch, I believe, that goes through there, there has
9 been work all along that ditch, from Front Range all
10 the way to Federal.

11 MS. ELOFSON-GARDINE: It's either
12 behind the college on the north side or to the
13 northwest side. But you might want to make note of
14 it, because we talked about it at the last meeting
15 and I just forgot it.

16 MR. MARGULIES: Okay.

17 MS. ELOFSON-GARDINE: Because wherever
18 they remediated -- I'm not sure exactly where the
19 spot is, but somebody at the college must facilitate
20 those kinds of things, like even David Boon.

21 MR. MARGULIES: That area is jointly
22 taken care of by two or three entities: One, the
23 city, the college, and then somebody else. And I've
24 got it written down in the logbook; so when I start
25 to make the calls for land ownership, I will pursue

1 that as well.

2 If it turns out that the area directly
3 behind -- when I say behind, that's directly to the
4 north of the college -- falls within that area --
5 like I said, there is an area closer to Federal and
6 120th, I believe, behind an old farmhouse that would
7 serve our purposes, as well. But I will definitely
8 double-check that.

9 Bini Abbott was kind enough to take
10 time out of her busy schedule one afternoon to take
11 me around -- I'll call them all of the Standley Lake
12 sites. There was about a half a dozen that we looked
13 at over there, including the one on the northwest
14 portion of the Standley Lake.

15 I will contact -- not Jim Stone from
16 CSU, but the other Jim Stone, to see if he is happy
17 with that site selection.

18 We looked at the two sites close to
19 Indiana and Highway 72; one on the northwest corner,
20 one just on the other side of the railroad track
21 which would be a little bit southeast of that, and
22 found two potential locations for those.

23 We also went down and took a look,
24 again, what was called the old Ralston School area.
25 And Bini has given me the name of the gentleman that

1 attended that school that I will be contacting to try
2 to get a little bit better location idea on that one.

3 Didn't we look at one other?

4 MS. ABBOTT: Walnut Creek?

5 MR. MARGULIES: Oh, yeah. We actually
6 we did a nice hike, actually, out in the Walnut Creek
7 area in the subdivision just to the south up, on the
8 hill -- well, not up on top of the hill, but on the
9 side; I believe it's City of Westminster land was one
10 candidate, which was directly south of the
11 subdivision -- not very far.

12 And then as we started to walk west
13 from the west side of the subdivision, there's been
14 quite a bit of activity in that area. There's a
15 couple of gravel quarries -- old gravel quarries;
16 there's been some dumping activity up in that area.

17 And we just kind of kept walking and
18 kept walking; and, finally, we ended up to the fence
19 line where the City of Broomfield's land was. And
20 both of us felt that directly south of Great Western
21 Reservoir, within a hundred or so yards, was an
22 excellent candidate for that second Walnut Creek.

23 And Bini thought that was -- it's
24 right on a line, coming straight out from the plant.
25 And then the second one would be just south of the

1 Walnut Creek area. So we actually got quite a bit
2 accomplished that afternoon -- about a half a dozen
3 sites.

4 Greg Marsh had a site picked in the
5 north buffer zone. For me to get on site to sample
6 something I think would be quite difficult. I think
7 there is a lot -- I talked to Jim Stone from CSU, and
8 he says that the number of safety-type courses and so
9 on and training courses that I would have to go
10 through could delay me from getting in there for
11 quite some time.

12 I contacted Greg -- and I'm kind of
13 sorry he's not here this morning -- and asked him if
14 it would be all right to move it like across the
15 fence, just off-site; he agreed with that and said it
16 was fine as long as there could be the least amount
17 of disturbance and so on. However, when I got out
18 the map and started looking at it, it is quite close
19 to the Marshall Lake sites.

20 If you would still like that -- I
21 wanted to check and see whether he wanted to move it,
22 if he thought it would be too much duplication --
23 very close to Mike Guillaume's site -- actually
24 probably within half a mile, at the most. So I did
25 want to double-check with him.

1 I've already looked at the area.
2 There are some -- there is a potential site there;
3 but I didn't know if he felt or other people would
4 feel it would be duplication because it was so
5 close. But I will speak with him and get his ideas
6 on that. That's No. 4, CDS-01.

7 That left me with about half a dozen
8 sites to finish up by this morning. Unfortunately, I
9 had to put a clutch in my car this weekend and I was
10 not able to get out and do those. I will have the
11 remainder of the sites looked at this week and
12 contact people, including the one that I want to get
13 back up and look at for Gale; so that by this -- the
14 end of this week, I'm hoping that all sites will have
15 been initially scoped; all people that recommended
16 the sites will have been contacted.

17 I'll make a footnote, but I'll let
18 Niels go into that. As a footnote, I met with Niels,
19 gave him a duplicate set of maps with all of the
20 tentative locations on them so he could meet with Dr.
21 Martell. And I'll let him go into that.

22 I did manage to get up and scope the
23 other Ralston School, up on -- up by Mount Vernon
24 Country Club. There are two or three long grass
25 areas close to the school that I think will be okay.

1 It's pretty housed up, if you will, in
2 that area; there isn't a lot of choice close to the
3 school. It's going to be a little bit iffy, but
4 there are some.

5 MS. ELOFSON-GARDINE: Are those sites
6 close to that little bluff area that comes off like a
7 V on the south side of the school?

8 MR. MARGULIES: There is nothing on
9 the south side of the school. There are houses --
10 between the school and the interstate, if you will --

11 MS. ELOFSON-GARDINE: Uh-huh.

12 MR. MARGULIES: -- there is a house
13 every 30 feet.

14 MS. ELOFSON-GARDINE: Yeah, but I mean
15 between the school and Mount Vernon Country Club.

16 MR. MARGULIES: That would be to the
17 north, not the south.

18 MS. ELOFSON-GARDINE: Maybe I'm turned
19 around on that.

20 MR. MARGULIES: The school is south of
21 the country club.

22 MS. ELOFSON-GARDINE: Right.

23 MR. MARGULIES: And the one area that
24 I looked at is between the school and the country
25 club; and the other area that I looked at is just

1 west of the country club.

2 MS. ELOFSON-GARDINE: So the sites you
3 thought were useful were on the side between them and
4 the country club?

5 MR. MARGULIES: Yeah.

6 MS. ELOFSON-GARDINE: Great.

7 MR. MARGULIES: One is between in
8 between and one is just to the west.

9 MS. ELOFSON-GARDINE: Great. That's
10 the area we really need monitored, because standing
11 looking down the bluff from the school between them
12 and the country club, you can see a V coming up where
13 there could be some up drafts depositing materials.

14 So give me a call in a week and I'll
15 help with that.

16 MR. MARGULIES: It is in between the
17 school and the country club.

18 MS. ELOFSON-GARDINE: Good. That's
19 the area.

20 MR. MARGULIES: If you are looking at
21 the wall, the country club is up here and the school
22 is up and the other one is just to the west.

23 The last area I wanted to mention, I
24 spoke with Jim Stone -- it was late last week, I
25 don't recall exactly when.

1 MS. ABBOTT: Which Jim Stone?

2 MR. MARGULIES: I'm sorry, Jim Stone
3 from CSU.

4 And he will be going out to do
5 background sampling within the next two weeks, he
6 felt. He has invited me to go along to observe all
7 of his sampling methodologies, which I will be
8 doing. It is not on-site sampling, so there is no
9 concern with me getting any sort of training and so
10 on and so forth to get on site. It will be off-site,
11 so I will be able to get out and do that with him and
12 observe his methodologies.

13 And I guess that's about it.

14 Like I said, I'm looking at about a
15 half a dozen sites left; they should be done this
16 week.

17 Niels has a little update as to
18 recommendations from Dr. Martell and, I think, a
19 couple more; but we're moving in the right
20 direction.

21 So that's about it.

22 CHAIRMAN LaVELLE: Okay. Any other
23 questions for Todd?

24 (No response.)

25 CHAIRMAN LaVELLE: If not, we'll just

1 -- we'll move along.

2 The next thing on the agenda here is a
3 report on lab costs that we got. We looked at five
4 different laboratories and tried to get costs from
5 them. And Niels is going to talk a little bit about
6 that and, I guess, maybe have some other things to
7 say about sampling sites and such.

8 MR. SCHONBECK: Yes. Let me follow up
9 on Todd's comments, first. I went and saw Ed Martell
10 and took the map and spread it out in front of him on
11 his desk and had him comment on it. And the only
12 thing that he suggested was to test for a possible
13 skip zone south of the plant; that we might pick
14 three more spots centered around North Table Mountain
15 in Golden, and go a half a mile to a mile and a half
16 west and east of that, with the notion that it's
17 possible that the way the plume and the weather was,
18 that perhaps it was carried long enough to be dumped
19 or picked up at that spot.

20 So I just pass that on to you; that
21 was the only tangible commentary he made on our site
22 selection.

23 I don't know if we have a map today or
24 not.

25 MR. MARGULIES: I've got maps.

1 MR. SCHONBECK: I didn't bring --

2 MS. ELOFSON-GARDINE: So those points
3 that we wanted to do between Golden and Leyden and
4 the Ralston School on Lookout Mountain would be
5 similar to the areas that we are suggesting?

6 MR. SCHONBECK: Well, it would be --
7 he thinks that the Leyden spots -- they are good, but
8 that he would also recommend doing North Table
9 Mountain farther south of that; and it's elevated, so
10 it's a possibility -- you know, that was just his
11 commentary.

12 I really would have to appeal to --

13 MS. ABBOTT: Here's a map.

14 MS. ELOFSON-GARDINE: Perhaps we could
15 hold it up.

16 MR. SCHONBECK: This is Golden --
17 Golden is down here; and North Table Mountain is
18 right here, just north of Golden.

19 And the sites around Leyden are up in
20 here. So the idea is that the plume came off, it may
21 have skipped and then -- that was his notion; and
22 that we would find -- try to find -- of course, his
23 other second commentary is what we have already been
24 talking about, is to find undisturbed spots if at all
25 possible.

1 He thought that the cesium survey was
2 a good idea, compared to that; and then you go from
3 here and to the east and to the west. So those are
4 three more suggested sites.

5 MR. MARGULIES: Just to add to Niels',
6 just -- one of the sites that has been -- that is
7 included on our list is halfway between Leyden and
8 North -- and Golden, along 93. So --

9 MR. SCHONBECK: In here?

10 MR. MARGULIES: Yes. In that area
11 near the dairy.

12 The site that I have tentatively
13 selected for that one is on the northwest corner of
14 North Table Mountain. I don't know whether that
15 would -- right about where your finger is, give or
16 take. I don't know whether that -- you would still
17 want to add the three in in addition to that. But to
18 let people know, there is one site on the northwest
19 side of North Table already.

20 MR. SCHONBECK: I don't know what the
21 difference in elevation is.

22 MR. MARGULIES: The difference in
23 elevation is probably 3 to 500 feet.

24 MR. SCHONBECK: And whether that makes
25 any difference or not.

1 MS. ELOFSON-GARDINE: That one sample
2 -- now, that's -- that North Table Mountain sampling
3 is something that Kim and Sue and Karen and I had
4 discussed at length that we were speculating that we
5 thought that maybe there may be some type of
6 deposition around North Table Mountain, too. And we
7 were wondering if we would be interested in that.

8 That one sample point we discussed at
9 the last meeting, there along Highway 93, was a
10 request from a past resident that's in Tennessee,
11 now, that felt very strongly that some effects from
12 her neighbors may be in that area where they were
13 living. So I would like us to keep that point; if we
14 can, for that individual.

15 MR. MARGULIES: Sure.

16 MR. SCHONBECK: Any commentary from
17 the committee on whether we should add those sites or
18 -- and visitors, please comment, those of you who
19 know more about it than I do, that's for sure.

20 MS. ABBOTT: I -- I would hope that we
21 certainly listen to Ed, ask him, when you pinpoint
22 the dairy site, ask him if that one would qualify for
23 one of his sites.

24 (Mr. Stovall joined the meeting.)

25 MR. SCHONBECK: As I understand it,

1 we're going to be adding sampling sites in the
2 future; is that correct -- or is this list -- how do
3 people feel about that, is this list complete?

4 MS. ELOFSON-GARDINE: I think with the
5 exception of wanting input from Ed and making sure
6 that Gale's were adhered to, I think we were all
7 pretty comfortable; we're down to sort of a final
8 list.

9 CHAIRMAN LAVELLE: Is everybody
10 comfortable with that?

11 (No response.)

12 CHAIRMAN LAVELLE: It seems reasonable
13 to me.

14 MR. MARGULIES: One last, just real
15 quick note: Niels, I can show you on my maps,
16 tentatively, where the one dairy site is.

17 Go ahead and pass that along to Ed --

18 MR. SCHONBECK: Right.

19 MR. MARGULIES: -- and then just call
20 me and let me know, one, two, three, tentative on the
21 top, east, west; and I'll add them and number them --

22 MR. SCHONBECK: Okay.

23 MR. MARGULIES: -- as however we feel
24 comfortable with that.

25 MS. ABBOTT: One thing we might add

1 about the Walnut Creek site, we walked to the north
2 of Walnut Creek and looked along there; but they had
3 plowed all of that to put in a golf course. So we
4 could not find anything that would really be
5 applicable.

6 MR. MARGULIES: To the north?

7 MS. ABBOTT: North -- north of the
8 site. Due west, I mean there was all this in -- it's
9 been disturbed land, but not developed-on land. It's
10 kind of just rocky and gravel and so on.

11 But we did hike, you know, all the way
12 to the -- to the edge of the reservoir in line with
13 the reservoir.

14 MR. STOVALL: You are aware that the
15 land either side of and immediately west of the line
16 north or south of the reservoir, Great Western
17 Reservoir, has not been disturbed. There was a time
18 a while back when there was some remediation that was
19 going to take place, but we weren't sure -- so if you
20 draw a line north-south at the east edge of the
21 reservoir, and then go down the fence road, inside
22 that area that's restricted by the City of
23 Broomfield, that's not been disturbed through the
24 remediation process that was proposed here about
25 seven or eight years ago.

1 MS. ELOFSON-GARDINE: Have they plowed
2 that land?

3 MR. STOVALL: Not Broomfield. They
4 plowed Jefferson County Open Space, but not
5 Broomfield.

6 MR. MARGULIES: One last thing:
7 Everybody please keep in mind, everybody talks about
8 no disturbance; there is no such thing out there as
9 no disturbance. Remember that I am looking for an
10 area that has had the least amount of disturbance the
11 longest time ago; is that right -- okay, it's a
12 gradational thing of a piece of concrete to the
13 longest time ago that it was disturbed; and that's my
14 goal is to find something with the least amount of
15 disturbance the longest time ago, so that people are
16 aware.

17 Thank you, very much.

18 CHAIRMAN LaVELLE: Okay. Are we ready
19 to go on to costs, Niels?

20 MR. SCHONBECK: Yes, I was asked to
21 walk us through this chart.

22 I did not set it up, so I have some
23 questions of my own. But we have five different --
24 down on the left-hand side, five different agencies
25 that can do sampling, including the Colorado

1 Department of Health and CSU; and then the top three
2 are -- are local labs.

3 And then the types of information
4 across the top; alpha spectroscopy cost, does that
5 mean that you are going to be -- these folks are
6 going to measure the energies of the alpha and
7 thereby distinguish which isotopes they come from?

8 MS. HUNTER: What they are doing is
9 plutonium analysis by alpha spec; and they are
10 showing the different kinds of the analysis; and the
11 cost means isotopes.

12 MR. SCHONBECK: I am probably going to
13 look to Mike and Ward to help me in determining what
14 this means.

15 The next column, gamma spectroscopy
16 cost, is this just to measure gamma radiation from
17 the sample or is it assuming that we have plutonium?
18 We're looking, again, at a spectroscopic analysis in
19 determining what isotope we have.

20 MR. WHICKER: It's just a -- taking a
21 bulk sample, putting in a uniform geometry -- like a
22 can or something -- and counting it for a length of
23 time on a gamma-ray detector.

24 So that really does not involve any
25 sample processing, per se, other than maybe if it's

1 soil, we always sieve them; but we simply put it in a
2 uniform geometry and see what's coming out in terms
3 of the gamma radiation. You can't see any
4 plutonium.

5 MR. MEYER: It would specifically
6 identify the radionuclides with higher energy.

7 MR. WHICKER: Yeah.

8 MR. MEYER: On x-ray.

9 MR. WHICKER: If you have enough
10 plutonium, you almost always have americium
11 associated with it in a certain ratio. If there's
12 enough, you can see americium, which has a certain
13 energy.

14 MR. SCHONBECK: A distinctive --

15 MR. WHICKER: A distinctive proton
16 that comes out if there is enough -- oftentimes there
17 isn't. Usually in off-site samples there seldom is
18 enough.

19 We can see cesium No. 137; we can see
20 uranium and a number of its daughter products; we can
21 see thorium and a number of its daughter products; we
22 can see potassium 40, which is naturally occurring.

23 But that's a pretty good, crude, quick
24 screening technique to at least see if you have
25 elevated levels of americium.

1 MR. SCHONBECK: So, in other words,
2 you can look at a number of analytes with the gamma.

3 MR. WHICKER: Yes.

4 MR. SCHONBECK: Now, back up to the
5 Column 1. Looking at plutonium, is this preceded by
6 a chemical --

7 MR. WHICKER: Yes.

8 MR. SCHONBECK: -- separation?

9 MR. WHICKER: Yes.

10 MR. SCHONBECK: Or chemically
11 identified plutonium?

12 MR. WHICKER: Yes.

13 MR. SCHONBECK: Okay.

14 MR. WHICKER: You have to go through a
15 very lengthy procedure to do that.

16 MR. MEYER: Plutonium isn't chemically
17 identified. It's chemically separated and then you
18 identify it by using the alpha spectrometer.

19 MR. SCHONBECK: Okay. Then mass spec
20 -- mass spectroscopy -- I presume that the purpose of
21 that would be to separate out the isotopes and to
22 distinguish the various plutonium isotopes, correct?

23 MR. WHICKER: With the alpha
24 spectroscopy in the first column we can distinguish
25 plutonium 238 from plutonium 239, 240. Plutonium 239

1 and plutonium 240 both have an alpha energy that's so
2 close that you cannot resolve those two. So we
3 always report them as both.

4 MR. SCHONBECK: Okay.

5 MR. WHICKER: Now, if you want to know
6 the 239-to-240 ratio for plutonium, you have to use
7 mass spectroscopy.

8 MR. SCHONBECK: And the purpose that
9 we would have for doing that would be to distinguish
10 between plutonium from Rocky Flats versus plutonium
11 from fallout.

12 MR. WHICKER: Yeah.

13 MR. SCHONBECK: And as I understand
14 it, you can also -- or is it possible to tell when
15 the fallout arrived, just from the kind of tests that
16 we have?

17 MR. WHICKER: No.

18 MR. SCHONBECK: Because that changes
19 the ratio, right?

20 MR. SCHONBECK: Well, you would
21 basically -- the idea there is that plutonium that
22 might have been released from Rocky Flats would have
23 a certain ratio on average. It may have varied a
24 little bit over the plant's operating history, but
25 probably not a great deal. This is -- this is

1 basically metallic plutonium that has not been
2 exposed to a lot of neutron flux, a lot of neutrons.

3 On the other hand, global fallout
4 plutonium, which was produced in a nuclear explosion,
5 would have been exposed to a lot of neutrons when the
6 bomb went off. These neutrons would have created a
7 lot of plutonium 240. So the 240-to-239 ratio is
8 different than it is for metallic plutonium.

9 So, knowing what those ratios are, you
10 can take a sample in the environment and make some
11 inferences about where it came from. And it's a very
12 sensitive technique that's been used a lot before to,
13 you know, infer where the material came from. And it
14 gets to be -- you know, you don't have to get too far
15 from Rocky Flats to -- to find difficulty in
16 distinguishing between global fallout plutonium and
17 Rocky Flats plutonium.

18 MR. HARRISON: If I could jump in, I
19 brought a bunch of things, and I put them over there
20 on the table. One of them is a reprint of an article
21 from Health Physics called, Additional Calculations
22 of Radionuclide Production Following Explosions at
23 the Nevada Test Site.

24 There is more to it than that. On
25 page 521 of that article, there are a bunch of

1 isotope ratios that were measured 30 days post shock
2 for a bunch of Nevada Test Site weapons tests back in
3 the '50s. And just looking up and down those
4 columns, you can get an idea of how variable those
5 ratios were.

6 Another thing that's over there is a
7 copy of a memorandum that I wrote to Bob Quillin a
8 few years ago in which I made a serious efforts to
9 compare those ratios with the ratios from the
10 Standard Reference Material Rocky Flats Soil that the
11 National Institute for Standards and Technology has.

12 And both of the articles are fairly
13 complicated, but the bottom line was I couldn't
14 distinguish it. Basically, you can see some
15 differences, and the uncertainties associated with
16 those measurements are so vague that you can't really
17 distinguish between the two.

18 Now, it may be that if you had big
19 chunks of plutonium laying on the ground that you
20 could do something; but with fallout levels and even
21 the levels in the NIST Standard Reference Material,
22 the uncertainties associated with the measurements
23 are just -- they completely overlap all those
24 different ratios.

25 So I don't really expect anybody to

1 really study those and figure them all out -- maybe
2 Ward will, and I would really be interested in his
3 opinion of my analysis of that. But, basically, I
4 think I wouldn't put too much hope in doing much with
5 those isotope ratios -- especially at 1200 to \$1900 a
6 sample. You might find better things to do with that
7 money.

8 MR. SCHONBECK: I was going to add to
9 that that we are going to archive these samples and
10 if there is some point in time when isotopic ratio
11 analysis is indicated, then we can do it; but
12 certainly I can't imagine any of us would want to do
13 this at this point.

14 Is that right?

15 MR. WHICKER: Were you mainly
16 referring to the variability among the various test
17 series at the Nevada Test Site or did you include in
18 your analysis a global fallout that was possibly
19 generated by testing in the Pacific and the Soviet
20 testing?

21 MR. HARRISON: No. All I had to work
22 with was the ratios in this article. And they
23 clearly say that global fallout has a different
24 composition.

25 MR. WHICKER: Yeah.

1 MR. HARRISON: But they didn't really
2 give me any details as far as what the differences
3 were or what the magnitude were.

4 MR. WHICKER: Your analysis is right
5 in the sense that there is a lot of variability. And
6 it really depends on how they constructed the device,
7 what the neutron flux was, and all these sorts of
8 things. And for it to be useful, you have to worry
9 about all these sorts of things.

10 I know that Beck and Craig did a
11 pretty good analysis of this in Utah and Nevada, but
12 -- but the way they did it is they had some other
13 information that would suggest that most of the
14 fallout in certain areas came from a certain test
15 series and that kind of thing. And they thought they
16 had the global fallout component pretty well worked
17 out, but there is uncertainty in it.

18 MR. HARRISON: And as you read through
19 the memo, toward the end I refer to another article
20 that was in the same issue of Health Physics in which
21 they weren't measuring plutonium, but they were
22 measuring fallout in different locations. And what
23 they said was, basically, most of the fallout in
24 Denver came from -- oh, let's see -- he says 82
25 percent of the fallout which landed around Denver

1 came from the Teapot and Plumb-bob test.

2 And at the very end of that we have a
3 table comparing those things. And when you do the
4 K correction, the Plumb-bob series, especially, looks
5 a lot like Rocky Flats plutonium. So if most of the
6 fallout came from a source that looks an awful lot
7 like Rocky Flats plutonium, I'm not sure where you
8 are going to see it.

9 I don't know where in Denver those
10 fallout measurements were made. I don't imagine they
11 were at the Rocky Flats Plant; but, you know, that's
12 all the information I have to go by. And all it does
13 is muddy the waters even more.

14 MR. SCHONBECK: Any other comments on
15 isotopic ratios?

16 (No response.)

17 MR. SCHONBECK: So that we would get
18 from mass spec, the third column there.

19 Then the fourth column, Beryllium
20 Analysis, we can decide -- I don't think we've
21 decided yet whether we're going to include that in
22 the first round; but there are the price
23 comparisons. And Barringer gives you a difference in
24 price for different -- what I presume are detection
25 levels --

1 MS. HUNTER: Yes.

2 MR. SCHONBECK: -- that if you want to
3 get down to a detection limit of 10 ppb, that's \$18;
4 and if you want to go down to 1 ppb, it's 25.

5 It's a modest increase for a tenfold
6 reduction.

7 Ward?

8 MR. WHICKER: We could come back to
9 it, but I would like to say one more thing about the
10 ratio thing.

11 MR. SCHONBECK: Oh, please.

12 MR. WHICKER: That is one of the
13 things that we're now doing. We have made
14 arrangements with Los Alamos to do some mass isotopic
15 ratios for us. And what we decided to do was to take
16 some of the samples that we had already collected;
17 and we've got a -- sort of a string of background
18 samples taken between Colorado Springs and Fort
19 Collins, for instance, that we're going to look at
20 the ratios on so that we can actually see what is
21 there.

22 And some of these should be pretty far
23 from the influence of Rocky Flats. And then we have
24 other samples taken from our old Macro Plot 1, which
25 is only 50 yards from the old 903 pad.

1 So based on that, irrespective of what
2 -- you know, all of these other complications, we
3 should have some real data coming out that may help
4 us. And then we have another series of samples that
5 go from 903 pad, almost due east, at different
6 intervals out about six or seven miles.

7 So we should be getting those data
8 back, you know, that would be interesting to look at.

9 MR. SCHONBECK: Uh-huh.

10 MR. WHICKER: In the meantime, you
11 could always archive samples you take; and if this
12 becomes a question later down the road, you can
13 always do this if you have the funds to do it.

14 MR. SCHONBECK: That's what I
15 understood.

16 That will be interesting, because you
17 are going be looking at what --

18 MR. WHICKER: What is there.

19 MR. SCHONBECK: -- is there.

20 That's always helpful.

21 Now, I don't -- perhaps you can help
22 me out. The ppb measurement for soil samples, is
23 that mass per mass; is that how you do it?

24 MR. WHICKER: (Nods head.)

25 MR. SCHONBECK: Mass of beryllium per

1 mass of soil.

2 MR. WHICKER: Uh-huh.

3 CHAIRMAN Lavelle: Let's see. Fifth
4 column, Sample Prep Cost -- yes, Todd?

5 MR. MARGULIES: I just had a quick
6 question for whoever put this together. There's
7 quite a significant difference in the beryllium cost
8 from Acculab than the others. Is that an accurate
9 number?

10 MS. HUNTER: Todd, I was the one that
11 put them together.

12 I did call them back to see if I had
13 taken the information down wrong over the telephone.
14 They said, no, that's what they charged.

15 MR. MARGULIES: Okay. It looks kind
16 of out of line.

17 MS. HUNTER: Yes, it does. It
18 certainly does.

19 MR. MARGULIES: Also, skipping over to
20 detection limit, is that a misprint to say beryllium
21 in terms of picocuries per gram?

22 MS. HUNTER: Once again, that was the
23 measurement I was given over the phone, and I also
24 called them back and said --

25 MR. SCHONBECK: Beryllium is not

1 radioactive.

2 MR. HARRISON: Yeah, it shouldn't be.

3 MS. HUNTER: That's what I thought.

4 MR. HARRISON: That's a good
5 question.

6 I would also like to add -- I don't
7 know if Nancy asked me and I didn't know at the time
8 or if she quit asking, or what; the Health
9 Department's detection limit for Beryllium is 3.3
10 ppm.

11 CHAIRMAN LaVELLE: We might just
12 parenthetically want to go back to Barringer and make
13 sure those are parts per billion and not parts per
14 million.

15 MR. MARGULIES: Yes.

16 CHAIRMAN LaVELLE: Because those are
17 extremely low for Beryllium in soil -- extremely low
18 detection limits.

19 MR. SCHONBECK: Yes.

20 MR. WINSOR: And I'm guessing they are
21 really parts per million. In that case, we would
22 want to do 1 part per million, just to get down to
23 what might be background levels.

24 MS. ELOFSON-GARDINE: We have a
25 discrepancy here with -- ATI is listed at parts per

1 million -- 1 part per billion; and then Barringer
2 says 1 part per billion; and then you have parts per
3 million on CSU. So it appears that either whomever
4 collected this or whoever was talked to, there must
5 be some kind of standardization or LLDs that they are
6 not going to have that dispirit of difference between
7 each other, especially for the cost; so maybe
8 somebody needs to go back and recheck on that so that
9 those discrepancy can be accounted for.

10 MS. HUNTER: Paula, I can take care of
11 that. I can call them again. I had checked with
12 them last week, seeing the same thing as I read over
13 the chart, seeing we had some discrepancies there.
14 They said, yes, that was right; but I certainly will
15 call them again.

16 MS. ELOFSON-GARDINE: Nancy, if you
17 are going to call them back, would you ask them about
18 a better extrapolation on their ability to check for
19 pollute -- for americium? It looks like there is
20 something missing here.

21 And I think I've got brain freeze
22 because I'm not coming up with exactly what I want to
23 say on that; but it seems to me, at first look at the
24 chart, that there is something missing for americium
25 here. And maybe I will think of it before we're

1 done.

2 MS. HUNTER: Okay, fine.

3 MR. SCHONBECK: Are you looking --
4 again, you can get americium in the gamma spec,
5 right, gamma spectroscopy; so are you -- that's
6 presumed that you -- in the second column, are you
7 looking at the \$75 a sample, that's the lowest on the
8 chart.

9 MS. ELOFSON-GARDINE: Yeah.

10 MR. SCHONBECK: Is that your
11 question?

12 MS. ELOFSON-GARDINE: Yeah.

13 MR. SCHONBECK: Okay.

14 MS. ELOFSON-GARDINE: I'm wondering
15 what their LLD is because they have not specified in
16 any of the gamma specs any kind of expectation as to
17 LLD for that.

18 Does that make any sense to anybody
19 else?

20 CHAIRMAN LaVELLE: Yeah, they -- the
21 ATI only gives their alpha detection limits; so we
22 don't have a comparative detection limit for their
23 gamma spec.

24 MR. HARRISON: The gamma spec
25 detection limit is almost certainly higher.

1 MR. SCHONBECK: Meaning not as good
2 as?

3 MR. HARRISON: Right. Which leads me
4 to another memo that I wrote to this committee
5 describing how recently calibrated are our low energy
6 detector and the sort of results I got with the same
7 -- the same Standard Reference Material Rocky Flats
8 Soil. There is a table kind of in the middle -- and
9 there is a mistake on this one, everybody needs to
10 make a note. I completely left the units off this
11 table and all the units are in picocuries per gram
12 except the percent deviation.

13 And, again, it's somewhat complicated,
14 but the bottom line is we can get in the ballpark.
15 I'm not sure we can get much closer than the ballpark
16 as far as having a certified value and what we're
17 measuring.

18 And when you look at the plutonium 239
19 and 240 numbers, it's possible that I have a mistake
20 somewhere in the calculations; but it would appear
21 that direct measurement of plutonium by gamma spec is
22 really out of the question.

23 When we started, I was really prepared
24 to defend that position, but now Acculab say they can
25 get a tenth of a picocurie per gram by gamma spec; so

1 I'm not saying they are wrong, but I would sure be
2 curious to see how they do it.

3 MS. ELOFSON-GARDINE: Was there ever a
4 margin?

5 MR. HARRISON: Good question.

6 MR. SCHONBECK: Okay. Going on,
7 Sample Preparation Cost. I presume that the
8 preparation cost is -- for those two in the middle
9 that say no prep charge, is part of the original
10 alpha spectroscopy; isn't that correct?

11 MR. WHICKER: (Nods head.)

12 MR. SCHONBECK: If we were to ask them
13 to do only one or some other, like say, just
14 beryllium, is it presumed that there is no prep
15 charge? Is that how you interpret that?

16 MS. HUNTER: I was told that they had
17 no prep charge --

18 MR. SCHONBECK: Okay.

19 MS. HUNTER: -- period.

20 MR. SCHONBECK: Detection limits, we
21 have been discussing those; and I'll come -- we'll
22 come back to that. We'll probably spend some time on
23 it.

24 And then turn-around time, it looks
25 like ATI is really fast. I wonder what -- we'll have

1 to see whether we need that or not. Other than that
2 we're looking at one month to months for the rest.

3 And then, quality control plan, I
4 don't know whether -- there must be differences
5 between them, but I'm certainly not qualified to ask
6 the questions to ferret that out. I would hand that
7 over to others.

8 So I guess what we should do is go
9 back and take a look at the detection limits and just
10 open it up to discussion in terms of, you know, what
11 we are interested in. It looks like ATI is -- has
12 got the lowest, that means the best detection limit.

13 MS. ELOFSON-GARDINE: I'm interested
14 in their statistical deviations and their ability to
15 meet their lower limits of detection with a
16 reasonable confidence level.

17 MR. SCHONBECK: Also, I would ask both
18 CDH and Tony and Ward about what your -- you folks do
19 this -- whether -- what's your comment on ATI? Is
20 that reasonable or are they exaggerating it?

21 MR. WHICKER: I have toured their
22 labs. They are kind of a new laboratory. They
23 actually did a lot of work for many years in the
24 hazardous chemical business; and they just recently
25 got into radiochemistry.

1 They do have a beautiful new facility
2 and they are trying to develop a clientele right
3 now. Shockey and Scott Webb and I went through their
4 lab about a month ago, and asked them a lot of hard
5 questions because we have had a few problems with our
6 hoods recently. And so we needed a little bit of
7 help leaching our own samples.

8 So we went through their lab; and,
9 frankly, we were quite impressed with not only the
10 quality of the equipment that they have, but also the
11 knowledge of the main people there that supervise the
12 analyses.

13 And I think that they are probably
14 charging a price that is -- I don't think they will
15 charge this kind of a price forever, because they are
16 trying to develop a clientele. So this is -- they
17 are probably losing money at \$145 a sample for alpha
18 spec.

19 But they do have -- they do have a lot
20 of detectors. And one of the things that that will
21 buy them, if they have time they can count samples
22 for an awful long time, which lowers the detection
23 limits of course. They have a lot of fume hoods, so
24 they can leach large samples, which also improves our
25 detection limits.

1 But I would look carefully at them
2 because I think they are pretty good. And we have
3 some samples -- we have some results back from them
4 already on a small study that we have done. And we
5 had our own quality control samples inserted in the
6 batches; and they looked good so far.

7 So I would give a careful look to
8 that.

9 MR. HARRISON: I would like to add
10 this: There are different methods out there for
11 doing it. Ward is talking about leaching. We use
12 what we call pyrosulfate infusion. Yeah, it's
13 methodological differences; but usually when we do
14 it, we use half a gram to a gram of soil.

15 I have seen a method by which
16 supposedly you can do 5 to 10 grams of soil, which
17 would get you another order of magnitude, right
18 there. If they are using a method like that, they
19 might be able to do that pretty easily. I don't know
20 if they are or not; but theoretically, it could be
21 done, you know.

22 MR. BIGGS: Tony, when you put
23 together the QA plan -- QC/QA plan -- and you talk
24 about your detection limits, doesn't that have some
25 kind of a specified error value around it, like 95

1 percent something?

2 MR. HARRISON: Ours doesn't. Maybe
3 some peoples' do.

4 MR. BIGGS: What do you take just the
5 manufacturer's specified detection limit?

6 MR. HARRISON: No. It has to do with
7 the sample size, the count time, the efficiency of
8 the detector; you know, there are a lot of variables
9 that go into calculating that.

10 Actually -- and I kind of misspoke.
11 The computer does the calculations for us. If I
12 remember correctly, it should be -- well, I would
13 have to check. It probably is about a 95 percent
14 confidence, that that's the real detection limit; and
15 I would have to go through that and check the math.
16 But there is a -- some level of confidence in the
17 detection limit, depending upon how you do the
18 calculation. And I would have to check to be real
19 sure what ours is.

20 MR. WHICKER: Typically that's right,
21 typically it's the 95th percent.

22 MR. HARRISON: I think that's what we
23 do, but I would want to check it before I promise
24 that.

25 MR. WHICKER: The sample detector

1 background is another one that comes in.

2 MR. HARRISON: Uh-huh.

3 MR. SCHONBECK: That's included.

4 MR. WHICKER: That's included in the
5 calculation of the detection limit.

6 MR. SCHONBECK: Let me ask an
7 interpretive question of those of you who do this:
8 When you say detection limit, supposing I get a soil
9 sample and it is, say, double the detection limit,
10 or, say, triple; are those values then fairly
11 certain. In other words, if I get a soil value that
12 is right at the detection limit, I'm going to be --
13 I'm going to have a lot of question about the
14 accuracy of that number; isn't that correct?

15 MR. HARRISON: (Nods head.)

16 MR. SCHONBECK: So just in -- in your
17 work, when you look at samples, what kind of factor
18 times the detection limit do you have in your head
19 when you say, ah-ha, there is something there I can
20 be sure of.

21 MR. WHICKER: You do a calculation
22 after you count a sample and report it. And I'm sure
23 you know this, but you clearly -- I mean, you could
24 have a sample that is three times the detection limit
25 but the confidence on that could well include zero;

1 it depends upon, again, how long you count it and
2 that kind of thing. It basically depends upon the
3 number of counts that you observe.

4 And so it's -- it's possible that you
5 could be three times the detection limit and may not
6 be significantly above it -- or it may be, it depends
7 upon what all went into that analysis, how long you
8 counted it, how big a sample you looked at --
9 basically how many counts did your detectors see
10 compared to the background of your detector; that's
11 really the critical question. So you would certainly
12 always want your laboratory to calculate that
13 uncertainty on all of the numbers that they present.

14 MR. SCHONBECK: When we get down to
15 this, it would probably behoove us to go through
16 these calculations among the committee to take real
17 data, because there is a lot that is left unsaid or
18 unperceived, I think. I mean, my little bit of
19 experience with atmospheric work and detection limits
20 is that you have to be real clear about what we're
21 talking about. You know, as you say, background,
22 comparing; so if you count background for longer you
23 are going to get more counts.

24 MR. HARRISON: You always come down to
25 a count rate, counts per minute or counts per hour or

1 however you want to limit it, and that count rate,
2 especially for background, may be a small fraction of
3 1. But --

4 MR. SCHONBECK: Well, you know,
5 regardless -- I think at some point in the future it
6 would be good for us to go through that so we can all
7 -- so all of us know what we're talking about.

8 MR. STOVALL: I guess I raise the
9 question, on these costs on the alpha spec costs, I
10 don't know that we know how long each of these labs
11 have proposed to count per sample. I know, having
12 viewed CSU's lab, at \$500 a sample, I would expect
13 that count time to be longer than some of these
14 others at some reduced cost.

15 MR. WHICKER: Yeah, we count long
16 enough to determine a predetermined level of
17 accuracy. In other words, we -- we try to count long
18 enough so that if it's reasonable to get within 5 or
19 10 percent of the true number, then that may mean for
20 a hot sample it may be 30 minutes or something. On
21 the other hand, for a sample very close to
22 background, it may be all night; it may be two days,
23 it may be all weekend. So it can be quite variable.

24 But that isn't the main reason for our
25 high number. Our high number is really that, first

1 of all, we're not trying to be a production
2 laboratory; we're not trying to compete on the
3 general market for analytical services. We're more
4 of a research-oriented laboratory.

5 MR. STOVALL: I guess what I'm saying
6 is that I would like to have a better definition of
7 how, on this alpha spec cost, what their variability
8 is in count time; and what is the formula? In other
9 words, is it a specified amount of time as related to
10 how hot the sample is; what is it? Just another
11 variable I think we need to pin down.

12 CHAIRMAN LAVELLE: Paula?

13 MS. ELOFSON-GARDINE: As long as we're
14 going to have some follow-up calls -- I think we're
15 putting together a list here.

16 MS. HUNTER: We're taking them down
17 here.

18 MS. ELOFSON-GARDINE: And I think Hank
19 makes a real good point here, we're all getting
20 around to the same issue here; and that is, you know,
21 there's some variability that appears to be
22 unaccounted for that we would like to have further
23 information on. And that is, how do their prices
24 listed relate to their LLDs and their error margins
25 and their count times?

1 And the inconsistencies of the LLD, as
2 shown here, we would like to have an accounted for.
3 And what methodology are they using? Are they all
4 using chemical leaching versus CDH's pyrosulfate
5 infusion method?

6 So as long as you are at it, we would
7 sure like to have some further information that would
8 perhaps answer some of those questions so that maybe
9 that can help us make some decisions. This is a real
10 good start here with this chart so that we can kind
11 of hone in on that. But I'm very much interested
12 specifically in their error margins.

13 MR. HARRISON: I don't want to
14 discourage that, but you can really get bogged down
15 in the methodological details of how to do this. And
16 I think for the most part --

17 MS. ELOFSON-GARDINE: We don't want to
18 belabor it, but just the basics -- you know, can we
19 get our questions answered about these comparative
20 procedures and --

21 MR. HARRISON: That's a good question,
22 but I'm not sure you will get that from learning more
23 about the methods. But the question about confidence
24 intervals certainly is appropriate.

25 You can really get bogged down in the

1 details trying to figure out just what's going on
2 here.

3 MS. ELOFSON-GARDINE: Just which
4 method are they using; what's their LLD; and how
5 confident are they?

6 CHAIRMAN LaVELLE: If I could -- if I
7 could make a quick suggestion: It seems to me at
8 this point maybe it would be a good thing to focus
9 our attention on ATI; fairly good costs, quick
10 turnaround --

11 MS. ELOFSON-GARDINE: Yeah.

12 CHAIRMAN LaVELLE: We know something
13 about the lab from CSU's visit. And maybe the best
14 thing to do it would be to see if we could get a
15 sample data package from them that lays out the whole
16 thing, tells the methods; here's the samples we did,
17 here's the results, confidence intervals. Maybe that
18 would be the easiest thing. If we could just -- it
19 would give us a data package with all the names or
20 something backed out so all we're looking at is the
21 just data and information.

22 MR. WHICKER: You have a right to ask
23 any lab how they do anything.

24 CHAIRMAN LaVELLE: Okay.

25 MR. WHICKER: If they don't tell you,

1 I wouldn't do business with them.

2 MR. SCHONBECK: You are saying we have
3 a right to expect them to respond to our answers -- I
4 mean, our questions.

5 MR. WHICKER: Absolutely.

6 MR. MARGULIES: You should be able to
7 get copies of the QA/QC plans, prep methodologies,
8 analysis methodologies, and so on and so forth, with
9 no problem.

10 MR. MEYER: Some of the most
11 interesting information you can get from them is how
12 they are performing on some of the National
13 Round-Robin tests -- particularly from the EPA -- so
14 you can see how their analyses compare to the known
15 values for samples that were sent out to them and to
16 other labs at these -- at these extremely low
17 levels. You can make some good decisions about the
18 lab overall.

19 MS. ABBOTT: And would every lab have
20 been sent those samples?

21 MR. MEYER: Any decent lab should be
22 running the round-robin test, I think.

23 MR. SCHONBECK: I would like to go
24 back to Tony's comment about not getting involved in
25 the methodology.

1 Can we make the decisions that we need
2 to and then discuss the results at the end if we
3 don't -- aren't really familiar with the
4 methodology? It almost seems essential -- at least
5 for some subgroup -- to go through it and be able to
6 present it.

7 MR. HARRISON: I don't have a problem
8 with that. You know, it's -- how you spend your time
9 and where you focus your attention is -- is entirely
10 up to you folks. I just -- I guess I was trying to
11 be a little more efficient; but it's a good point,
12 there is some variation in result by methods, and it
13 may really be worth your time to focus on that and
14 really, you know, make sure you understand what's
15 going on and how it's done.

16 MR. SCHONBECK: My bias is just that
17 if you do -- if we do go through the methodology as
18 hard as that is, we'll end up having, I think, a far
19 better grip of what we're doing and what the data
20 mean; and, therefore, be able to communicate to the
21 public what this stuff means.

22 CHAIRMAN LaVELLE: And, of course, it
23 won't be just what we do; but sampling everybody else
24 has done and the analysis everybody else has done,
25 too; so it helps in a perhaps broader scheme of

1 things.

2 MR. WINSOR: Well, good. We're
3 missing one point that Paula brought up; and that is,
4 what are the questions? We're talking about
5 methodologies, but, yet, what are the questions that
6 are going to be asked from the data? There's the key
7 as to what kind of methodology and the detection
8 limits and associated studies you want to look at;
9 what kind of questions you are talking about?

10 MS. ELOFSON-GARDINE: We need to go
11 back to what we talked about at the last meeting; and
12 that is, can we end up with some results that can be,
13 within reason, integratable with other samplings that
14 have been done, other data bases that have been
15 built, so that they are not meaningless results?

16 CHAIRMAN LaVELLE: I can see we're all
17 chafing at the bit to get into objectives, so let's
18 -- let's finish this up quickly and start that
19 conversation.

20 I listed a few things up here that we
21 just talked about -- I don't know if I caught
22 everything we want to wanted to ask the labs. And,
23 specifically, do we want -- how much more do we want
24 to explore beryllium at this point?

25 Do we want to collect that

1 information; is that -- do we want that to be a focus
2 or are we going to focus the others, or --

3 MS. ELOFSON-GARDINE: I can't read
4 that second --

5 CHAIRMAN LaVELLE: "Examine Data
6 Package" is the second one; "Focus on ATI", at the
7 moment; and we want to get their "Performance on the
8 National Intercomparison Tests." Those are the four
9 things that I have listed.

10 MR. SCHONBECK: Do we have time,
11 today, to talk about the beryllium issue? I don't
12 think that's a quick yes-or-no answer discussion.

13 CHAIRMAN LaVELLE: Right. And I don't
14 want us to decide necessarily whether we're going to
15 analyze for beryllium; but, just, do we want to
16 explore that right now, the analytical part?

17 MS. ELOFSON-GARDINE: Are we done
18 hashing this over first, though?

19 MR. SCHONBECK: I would suggest that
20 we get clarification on ATI's -- I'm sure that's --
21 or I would guess that's 1 ppm, not ppb.

22 CHAIRMAN LaVELLE: I would, too.

23 MS. ELOFSON-GARDINE: Jim, on the
24 gamma spec clone, here, none of the labs listed here
25 give a count time, what their gamma spec cost is; and

1 we need that to be specified.

2 CHAIRMAN LaVELLE: Okay, so you want
3 -- you want --

4 MS. ELOFSON-GARDINE: Gamma count
5 time.

6 CHAIRMAN LaVELLE: This -- what we put
7 up here all focused on the alpha spec analysis; so
8 now you are saying the gamma --

9 MS. ELOFSON-GARDINE: What count time
10 is that representing for the gamma?

11 MR. HARRISON: Paula, I think what you
12 want to know, again, is detection limits.

13 MS. ELOFSON-GARDINE: Right.

14 MR. HARRISON: Because depending on
15 the efficiency of the detector, I might have to count
16 something twice as long as somebody else to get the
17 same detection limits. So the count time doesn't
18 tell you that much.

19 MS. ELOFSON-GARDINE: They must have a
20 basic idea what they base these figures on on.

21 MR. HARRISON: Yeah, I'm sure they do.

22 MS. ELOFSON-GARDINE: I mean -- I
23 mean, just for curiosity sake, has the guy that
24 priced himself \$75 an hour lower priced himself lower
25 to get the business, like Ward said, or are they not

1 intending to count it for as long as they would
2 otherwise? I don't know. Maybe it's irrelevant, it
3 may not be. But we should know.

4 MR. HARRISON: Its worth looking into,
5 sure.

6 MR. SCHONBECK: I have one last
7 question, in terms --

8 CHAIRMAN LaVELLE: Sure.

9 MR. SCHONBECK: To put the detection
10 limit values into perspective. What is -- what --
11 Ward and Tony, what do you expect to find off-site,
12 say, just southeast of the plant or Indiana Avenue,
13 in terms of picocuries per gram in the soil -- just
14 ballpark, so that all of us can make the comparison.

15 MR. WHICKER: Certainly less than 1.

16 MR. SCHONBECK: Less than 1.

17 MR. HARRISON: If you are right around
18 the fence line, probably between .1 and .5, maybe --
19 maybe up to 7 or 8.

20 When you get very far from the plant,
21 it appears to drop off very quickly.

22 MR. SCHONBECK: So what that means to
23 me is someone like Acculab is probably not going to
24 do us much good because their detection limit is
25 pretty close to the highest we would expect to see

1 off-site, unless we hit a hot spot that no one else
2 has seen. That makes a further reason to go for ATI
3 and get the details on it.

4 CHAIRMAN LaVELLE: Right.

5 MR. WHICKER: I think if you want to
6 get into this methodological thing. I think there
7 are two things I think are critical; one is, how many
8 grams of soil can they process per sample; like he
9 said. If they use a half a gram or a gram, they can
10 do a total dissolution with pyrosulfate infusion.

11 On the other hand, if you are talking
12 about levels that you are likely to see several miles
13 away, you know, you are going to be seeing fallout
14 plutonium levels; and it's going to be very, very
15 small; and that's -- that's hardly an adequate
16 sample, really, to do very well, I think.

17 On the other hand, I think they can
18 use an H.F. leach, I think, with 5 grams or so or
19 they can even crank it up. Typically we run about 5
20 grams or so; we find that works pretty well.

21 MR. SCHONBECK: Uh-huh.

22 MR. WHICKER: So I would ask how much
23 they plan to sample.

24 MS. ELOFSON-GARDINE: Okay, so sample
25 size --

1 CHAIRMAN Lavelle: I put down size of
2 sample that can be processed/counted.

3 MR. WHICKER: The other question you
4 can ask is simply how -- how long are they willing to
5 count their samples? All these alpha detectors are
6 pretty similar in terms of their basic sensitivity
7 and background; so if a lab tells you, well, we count
8 for no more than overnight, versus if they have to do
9 it all weekend or something, that might be
10 worthwhile.

11 MR. SCHONBECK: Or -- or -- or for Jim
12 to ask them what their extra charge would be for
13 extended counting.

14 MR. WHICKER: Yeah.

15 MR. SCHONBECK: Now, if can you -- you
16 can leach with H.F. for 5 grams, what are the -- sort
17 of the problems, if you go up to 50 grams; is it a
18 matter of just hood?

19 MR. WHICKER: Yeah, it just adds a lot
20 more -- you have to use a lot more acid and you put a
21 lot more stuff up the stack and it disappears quicker
22 and that sort of thing; but some labs have a very
23 good scrubber system and they handle those things
24 pretty well.

25 I do know that ATI has the state of

1 the art in terms of laboratory fume hoods, scrubber
2 systems and their p.b.c. ductwork and that sort of
3 thing.

4 MR. SCHONBECK: Would you recommend us
5 pursuing the notion to ask ATI what they do and could
6 they multiply it by 10 and what the cost would be?

7 MR. WHICKER: Here's another thing --

8 MR. SCHONBECK: There might be an
9 opportunity to get data that we might otherwise not
10 be able to get.

11 MR. WHICKER: Here is another crucial
12 thing to ask them: Ask them if they use a tracer.

13 CHAIRMAN LAVELLE: Absolutely.

14 MR. WHICKER: Some people use an
15 average yield; but they should be using an internal
16 tracer, that should be spiking with some isotope like
17 plutonium 236 or there are one or two others that can
18 be used.

19 MS. ELOFSON-GARDINE: Shouldn't that
20 be part of their QA program?

21 CHAIRMAN LAVELLE: Right.

22 MS. ELOFSON-GARDINE: They must be
23 using some typed of standardization and calibration
24 in their labs.

25 MR. WHICKER: The beauty of that is

1 you know what you recover of what you added; so for
2 each sample you measure the recovery of this chemical
3 process. And not all labs do that.

4 MR. SCHONBECK: It seems like it would
5 be essential.

6 CHAIRMAN LaVELLE: It does seem like
7 it.

8 MR. HARRISON: That's why you ask.

9 MS. ELOFSON-GARDINE: I can't imagine
10 any process for a reputable lab not having some type
11 of basic QA like that.

12 MR. WHICKER: That's one aspect of
13 QA.

14 MR. MARGULIES: That's for sure.

15 MS. ELOFSON-GARDINE: Have you asked
16 ATI about that yourself, yet?

17 MR. WHICKER: They use special tracers
18 on everything they do out there.

19 MS. ELOFSON-GARDINE: So I guess the
20 question is, do their competitors?

21 MR. WHICKER: Yes, that's a good
22 question.

23 CHAIRMAN LaVELLE: Okay.

24 MR. MEYER: One thing the people that
25 took the tour up at CSU noted is the effort they put

1 into homogenizing the sample, which is another factor
2 if you are coming in with a kilogram of soil and
3 analyzing a gram, it's tremendously important that
4 that gram represent the soil and rock and so on --
5 you make decisions about how to deal with the rock --
6 but that gram is absolutely representative of what
7 was in the original package that came into the lab.
8 And that takes a lot of time and effort.

9 There are different aspects to that;
10 the way you grind it; how much grinding you do; what
11 levels you go to; how you split the sample into
12 fractions; where you put the rocks, those sorts of
13 things.

14 There is also a concern in the lab
15 that is handling different concentrations of
16 plutonium that samples that are coming in besides
17 yours that you don't know anything about that might
18 be at higher activities are contaminating the samples
19 that are moving through the same system at some
20 point. And when you are dealing with concentrations
21 that might be 10-to-the-6th different or extremely
22 different, a little bit of crossover between these
23 hopefully separate pathways can be extremely
24 important. Your results are going to appear to be
25 random --

1 MS. ELOFSON-GARDINE: So do we add to
2 our list of questions --

3 THE REPORTER: I'm sorry. Excuse me,
4 we need to do this one at a time in order to make a
5 concise record.

6 You were saying --

7 MS. MORIN: We just have to get the
8 gist of things, we don't need to get everything.

9 THE REPORTER: I'm sorry. Excuse me.

10 MR. MEYER: It would be interesting to
11 hear Ward or somebody talk about that, what the
12 dangers are.

13 MR. WHICKER: There is a real danger
14 in exactly what you say. And we -- we particularly
15 have that danger because we're sampling right up to
16 the 903 pad, and we're sampling in Fort Collins and
17 Colorado Springs. So, yeah, the range of sample
18 activities goes over many orders of magnitude.

19 So the way we try to deal with that
20 is, first of all, we're -- we're trying to space out
21 things in time, wherein we're in -- in the studies
22 we're doing now, we're trying to do all of our lower
23 activity samples run through the laboratory first;
24 we're going to save our expected higher activity
25 level samples until everything else is done.

1 We also have a separation in terms of
2 space. We have three levels of laboratories, we have
3 a high, medium, and low level laboratory. And
4 samples that we expect to be high level, we run them
5 through a different -- a different location than we
6 do our others.

7 Then there is also the thing that we
8 always do and that's to do a preliminary screen on
9 all of our samples before we run them through the
10 laboratory. One form of screening is to do the gamma
11 spec. And if we have a lot of plutonium in there, we
12 always see detectable americium from the gamma spec.
13 That's before we really have to do much to the
14 sample.

15 The other level of screening that we
16 always do is, once we take a sample and sieve it and
17 so on, we do a gross alpha screen. We have a zinc
18 sulfide detector we place over a petri dish of the
19 soil and we see what we get. If we have a lot of
20 plutonium in there, we know it; we can tell right
21 away. If it's down at a certain level, we don't see
22 much above background; so we can treat the samples
23 accordingly.

24 And then within those classes of
25 samples we have a randomization procedure; and we

1 have an escrow procedure where he we have a
2 statistician blind us to what the samples are and
3 where they came from exactly.

4 And that's kind of how we deal with it
5 -- well, and the other way we deal with the problem
6 is extreme care to clean -- we clean our laboratory
7 daily from top to bottom, even scrubbing out the
8 hoods; our sieves are washed ultrasonically after
9 every sample, and that kind of thing.

10 So we take about every possible kind
11 of care you can physically do to make sure we
12 minimize this cross-contamination.

13 MR. MEYER: How about homogenizing,
14 itself, with a big sample coming in, you put an awful
15 lot of effort into that as well.

16 MR. WHICKER: We sure do. You get a
17 lot of homogenization through the sieving process;
18 but then we also -- once we do that, we have a sample
19 jar that we put on the rotating machine, and we
20 rotate these samples for an hour or so to really
21 thoroughly mix the sample. That doesn't guarantee
22 it's perfectly mixed, but it's about the best you can
23 do.

24 MR. MEYER: The problem with not doing
25 those sorts of things is that the results can be

1 influenced by inhomogeneities in the soil or by
2 cross-contamination. And the numbers that you see on
3 a graph which sprinkle all over the place may have
4 nothing to do -- very little to do with the samples
5 that were originally submitted if these sorts of
6 things aren't done. It can be really confusing at
7 these low levels.

8 MR. WHICKER: Those are some of the
9 reasons that CSU is \$500 a sample. I mean, that's
10 their actual cost; but it just reflects a lot of
11 extra care and effort.

12 I don't think you really have to go
13 that way, frankly. I think what -- what you are
14 looking for are possible surprises out there that.

15 MR. MEYER: That's a good point.

16 MR. WHICKER: You are looking for
17 surprises or you are looking for confirmation of what
18 we think is the case. And I doubt if you need that
19 kind of -- I doubt if you need to go to that kind of
20 expense to determine that -- those sorts of things.

21 So I'm not plugging our lab at all,
22 I'm plugging you the other way.

23 CHAIRMAN LAVELLE: So not to minimize
24 that, what I put down up there was, "Cross-
25 contamination control/sample protocols." And we want

1 to know something about those.

2 MR. WHICKER: Yeah.

3 CHAIRMAN LaVELLE: Okay.

4 MS. ELOFSON-GARDINE: Along with
5 No. 10, would you add, What are their measured or
6 expected lab backgrounds?

7 CHAIRMAN LaVELLE: Lab backgrounds?

8 MS. ELOFSON-GARDINE: And if they have
9 contamination in the lab, we want to know to what
10 degree it is.

11 CHAIRMAN LaVELLE: Hopefully for ATI
12 -- it's a new lab -- it's pretty low; but who knows?

13 Okay. Are we getting close to done,
14 now, with this?

15 Nancy, you are going to take the lead
16 on collecting this information?

17 MS. HUNTER: You want all of this
18 information from all three commercial labs and CDH
19 and CSU or do you just want it from ATI?

20 CHAIRMAN LaVELLE: I don't know. My
21 suggestion is, let's just get it from ATI; but what's
22 your pleasure?

23 MS. ELOFSON-GARDINE: What's yours?
24 Sure, do we think --

25 MR. SCHONBECK: I think probably --

1 well, ATI -- I mean, given what Ward has said and
2 that -- and the turnaround times; although I'm always
3 the one to say not to leave anything out; maybe we
4 should just get -- just see what kind of information
5 -- maybe -- well, pick another one. Maybe we should
6 pick another one of the other two.

7 CHAIRMAN LaVELLE: Okay, that seems
8 reasonable. Maybe Acculab? They have a slightly
9 better --

10 MR. SCHONBECK: If ATI were out of
11 business, which other one would you recommend?
12 Anybody that knows something about these labs other
13 than what's on the sheet here.

14 MR. MARGULIES: I have done a lot of
15 work with Barringer -- not radionuclides, it was all
16 organics and pesticides.

17 Of the number of labs I have been
18 connected with -- again, only organics in a hazardous
19 waste scenario, not in a rad waste -- I don't want to
20 say anything negative, but they weren't the lab I was
21 the most pleased with. I did run into some problems
22 with them. But, again, it has nothing to do with
23 radiological nuclides.

24 MR. HARRISON: I think I can say
25 Acculab and Barringer both have good reputations for

1 doing radiochemistries. Both of them have relatively
2 high detection limits compared to what -- the kind of
3 things that we're looking for.

4 MR. SCHONBECK: Yeah.

5 MR. HARRISON: So if you can negotiate
6 that down somewhat, I think you would be in pretty
7 good shape without running the cost up too high; but,
8 yeah, they are good, reputable labs.

9 MS. ELOFSON-GARDINE: I think I'm
10 interested in ATI more than the other two.

11 CHAIRMAN Lavelle: Ann, have you got
12 all this down.

13 MS. LOCKHART: Uh-huh.

14 CHAIRMAN Lavelle: Okay. Well, what
15 are we going to do?

16 MR. MARGULIES: Flip a coin.

17 CHAIRMAN Lavelle: I'll put up a
18 proposal: Let's focus on ATI and try to get the same
19 information from Acculabs, just as a comparison.

20 MR. STOVALL: The other question I
21 have is, do we feel we have enough information on
22 CSU; because I think we somehow along the line here
23 have to maintain a standard that we are familiar
24 with; and a number of us have visited that lab and
25 heard more than once what the process is, in terms of

1 quality control, use of tracers, escrowing, and a lot
2 of that.

3 So my question is, do we believe we
4 know enough about CSU to keep that lab in perspective
5 in comparing it with these other two? I think the
6 answer should be yes. Do you agree?

7 MR. SCHONBECK: (Nods head.)

8 MR. STOVALL: I would not want to
9 preclude the use of that lab. We're looking at, you
10 know, two or three times the cost here; but we're
11 also concerned with quality and methodologies and
12 reliable data and so forth.

13 MR. SCHONBECK: You know, what I -- my
14 intuition would be to take some samples -- whatever
15 you end up doing -- if we use ATI -- is to send some
16 to CSU, some split samples because we have a lot of
17 data -- or even CDH. There is a lot of data out
18 there that we should be trying to compare with. We
19 probably should get that kind of comparisons.

20 CHAIRMAN LAVELLE: It wouldn't be a
21 bad idea.

22 MR. MEYER: One problem you run into
23 is how do you split the sample? All of those
24 problems exist unless the sample is split as
25 carefully -- I'm not sure. Ward, what do you think

1 about that?

2 MR. WHICKER: You should build in your
3 own quality controls however you want to do it; there
4 is a lot of different ways to do that. You can
5 purchase, for instance, standard environmental
6 samples. You can buy -- in fact, you can buy the
7 Rocky Flats Soil Standard from NIST. The NIST is the
8 National Institute for Standards and Technology. And
9 that is the most legitimate analytical authority you
10 can find -- for radionuclides, at least.

11 And they might -- I don't know what
12 they would charge for one of those. It might be
13 \$1,000. But it may be enough to put those samples
14 into your sample stream at some point and see how
15 they do.

16 MR. MEYER: (Nods head.)

17 MR. WHICKER: Because those have been
18 extremely well characterized. That's one thing you
19 can do.

20 And if you can tie back in your data
21 to NIST, very few critics will come back to you.

22 MR. SCHONBECK: That's a good idea.

23 CHAIRMAN LaVELLE: That's a very good
24 idea. We'll have to remember that.

25 MR. SCHONBECK: You can slip some of

1 those in, and they won't be able to tell that from
2 any other Rocky Flats soil sample.

3 CHAIRMAN LAVELLE: That's right. They
4 shouldn't be able to.

5 MR. WHICKER: That's one thing you can
6 do. You can also do similar things: You can get
7 standard samples from the International Atomic Energy
8 Agency that are very well characterized, and so on;
9 marine sediments, you name it. They can provide
10 different types of samples for you.

11 MR. SCHONBECK: Todd, did you have
12 something you wanted to add?

13 MR. MARGULIES: Well --

14 MR. SCHONBECK: You looked like you
15 wanted to --

16 MR. MARGULIES: -- the QA/QC aspect
17 when we get to that point is something -- for the
18 sampling -- we need to put in some sort of, as Ward
19 mentioned QA/QC sampling. I'm not sure if we're on
20 the same wavelength, but whether it be -- just as
21 there are many different kinds of internal standards
22 that laboratories go with, spikes, duplicates, et
23 cetera, et cetera, we need to put in something, I
24 feel, when we're doing the sampling, as well.

25 Obviously, we're not going to have

1 field trip blanks and go on and on and on, but at
2 least some duplicates to help enhance that as well;
3 and how much of that we do, and so on and so forth,
4 we can discuss at a later time.

5 One comment on interjecting a sample
6 that would be brought in from one of the agencies
7 that Ward mentioned, I would need to know so that
8 when I was sampling and numbering, and so on and so
9 forth -- obviously we wouldn't want the laboratories
10 to know -- but I would have to include that in my
11 sampling scheme so it looked like it was just another
12 run-of-the-mill sample. It's not decisions we have
13 to make today, but just to be aware of it.

14 MS. ELOFSON-GARDINE: Right.

15 MR. MARGULIES: QA/QC in sampling is
16 important, as well.

17 MR. WINSOR: Do I understand you are
18 going to solicit further information from more than
19 ATI? Do you want to include Barringer and Acculab?

20 CHAIRMAN LaVELLE: My understanding
21 was ATI and Acculab; just get one other lab for
22 comparison.

23 MR. WINSOR: I think -- I think it's a
24 good idea --

25 MS. ELOFSON-GARDINE: To have --

1 MR. WINSOR: -- to get information
2 from more than just one. I mean, it looks like we'll
3 go with ATI, but let's follow this up.

4 MS. HUNTER: I would like to add that
5 any of these commercial labs will come to this
6 committee, make presentations, let you ask questions;
7 tour their facilities, look at their QA/QC plans.
8 They would make that offer.

9 CHAIRMAN LaVELLE: I think that would
10 be a good idea. I think maybe down the road when we
11 are ready to make a decision, perhaps.

12 MS. HUNTER: Okay.

13 CHAIRMAN LaVELLE: Okay, can we go on
14 to talking about sampling objectives now?

15 (No response.)

16 CHAIRMAN LaVELLE: Good. I take that
17 as a yes.

18 We have two very general global
19 objectives that I think we agreed to last time and
20 that I'll put up here quickly, and we can use that as
21 the basis for discussion.

22 The first is to provide citizens with
23 sampling opportunity; and the second one was to
24 collect scientifically defensible data so that it
25 could be incorporated into the database that's being

1 collected around Rocky Flats.

2 With those two very general objectives
3 in mind, I think we need to start now becoming a
4 little more specific about things. And one of the
5 things we have Ward and Mike especially here for is
6 that they have gone through exactly this kind of
7 exercise before out there, have set up these
8 objectives, and can hopefully give us some
9 suggestions on ways to think about making those
10 objectives specific so that we can take those
11 objectives and say this is the kind of method we want
12 to use; this is the kind of soil sample we want to
13 take; this is the kind of analytes we want to analyze
14 for; and here's the methods we want to use for those
15 analyses.

16 So, I don't know -- I think it would
17 be good for Ward or Mike, you probably thought about
18 this a bit, to maybe start on this, get the
19 discussion rolling on where you see we need to go to
20 establish these more specific objectives.

21 MR. BIGGS: Before they get started --

22 CHAIRMAN LaVELLE: Sure.

23 MR. BIGGS: -- a kind of a question
24 that's been bothering me a little bit -- maybe more
25 than that: When the HAP Panel saw fit to set up this

1 subcommittee, what were their goals and objectives
2 that they saw coming out of this? I presume
3 credibility would be one of them. What were the
4 others and what did -- what did they see us producing
5 for them out of this panel or committee or whatever
6 you want to call us?

7 CHAIRMAN LaVELLE: Uh-huh.

8 MR. BIGGS: The objectives they had in
9 setting us up and giving us money to do this?
10 Obviously, they are looking for something if they are
11 going to throw this much money at us.

12 CHAIRMAN LaVELLE: I'll take a shot at
13 it; and there are other panel members that probably
14 want to take a shot, too.

15 There truthfully was never a time when
16 the Health Advisory Panel sat around a table and said
17 we want to set this committee up and here are our
18 objectives. The discussion were much more -- always
19 much more diffuse than that. And probably there were
20 reasons that different panel members would come up
21 with.

22 Certainly one of the reasons that I
23 was most interested in this was to bring citizens
24 into the process in a much more tangible and direct
25 way so that they would not -- not only would they go

1 to meetings and hear about what was happening to the
2 process, but they would become part of at least a
3 section of that whole process and really understand
4 more of what that overall study was supposed to be.

5 And so one of my objectives is to come
6 out of this with a group of interested citizens that
7 are just acutely aware of the whole process and that
8 have been involved in the process; and hopefully have
9 a little bit of ownership in the process, know --
10 know what it is.

11 If credibility is some fallout from
12 that, certainly I would be very pleased.

13 Now, as far as -- as far as the data
14 collected, the -- another objective, at least that I
15 had was that I assumed -- in fact it's proven to be
16 true that there were a number of people around that
17 had historical sort of insight as to what might have
18 happened, and knew the lay of the land -- certainly a
19 lot better than I did.

20 And there hasn't really -- there had
21 never really been any sampling that was done based on
22 just peoples' observations, people that had known the
23 -- known the area. And so I was hoping that we would
24 collect some of those kinds of people, and those
25 recommendations would point us to sampling spots that

1 hadn't been done before, that hadn't been sampled
2 before, and that might show something.

3 And that's -- I think that's been
4 realized fairly well so far.

5 MR. BIGGS: So to kind of historically
6 summarize, here, that really what you've got are CDH
7 and the -- whatever you want to call it DOE/EG&G sets
8 of samples that you have already got in hand and
9 ongoing and whatever. So this committee was really
10 set up to kind of supplement what's already ongoing
11 then.

12 MS. ABBOTT: Partly.

13 CHAIRMAN LaVELLE: That was -- that
14 was part of it. That was -- from my standpoint.

15 Now, Bini has been very interested,
16 you know --

17 MR. BIGGS: Well, maybe that's not
18 necessarily so.

19 What's the other, "partly," then?

20 CHAIRMAN LaVELLE: Yeah, go ahead.

21 MS. ABBOTT: From my perspective, the
22 -- the main emphasis was on giving citizens who did
23 not have the -- and that's all of us -- who did not
24 have the financial resources to go out there and do
25 testing, to at last -- because we had some government

1 money, and yet it was not in any way directed by the
2 government -- that at last individual citizens who
3 had been so interested in this all through the time
4 of Rocky Flats, that at last they could get their
5 2 cents worth in and -- and study where they wanted
6 to, whether it was off the wall or not, to at last
7 let -- let the individual citizens who had really
8 studied this have a -- have a shot at it, one way or
9 the other.

10 And my emphasis was not on whether
11 these results would be very good for the -- for
12 including in other studies that have been done --
13 maybe they would, maybe they wouldn't. And I think
14 it is very important, now, that possibly some of them
15 can be.

16 But I mean, for instance, if -- if my
17 idea of some place at the entrance to Standley Lake
18 -- and we found no plutonium except for background,
19 well and good; but at least that I as a citizen had a
20 chance to say, I think maybe there is a lot of
21 plutonium there, maybe there is no plutonium; but at
22 last that the citizen has a chance to use government
23 money -- which is all of our money -- to yeah or nay.

24 CHAIRMAN LaVELLE: Yeah, and that's --
25 just to show you, I think the very first time we

1 recommended that committee, Bini made about that same
2 speech and has been very insistent all the way
3 through that that is a key to this whole
4 subcommittee.

5 And so we don't -- I don't think we
6 ever want to lose sight of this first objective.

7 MS. ABBOTT: And another person who
8 kept saying that was Owen Hoffman.

9 CHAIRMAN LaVELLE: Right.

10 MS. ABBOTT: Over and over, Owen would
11 say, that's why the citizens need to have a chance to
12 have input and to at least find out.

13 CHAIRMAN LaVELLE: Niels?

14 MR. SCHONBECK: My perspective on it
15 at the time and since then has been that the Cambra
16 study has been based on unsubstantiable data in the
17 sense -- from the point of view of the public, that
18 we're not sure about the records, its modeling, its
19 conjecture, its -- it was, you know -- we were
20 hearing comments from the public that this was a
21 fraudulent study because it was based on all these
22 data sets that nobody trusted.

23 And so what I wanted to do was to
24 bring at least the panel into reality by saying, All
25 right, what we can do in response to this is to tie

1 it to some phenomenological data, get concrete about
2 it, go to the soil and do it.

3 And you can't rely on other people's
4 studies for all the reasons why we started this whole
5 procedure in the first place. So the panel, itself,
6 had to do it. So it was a way of bringing the first
7 study into some concrete reality.

8 And then, of course, part of that is
9 -- is that the citizens need to be a part of that. I
10 mean, it's almost a dual priority for me.

11 And then No. B down there is that as
12 long as we're going to do sampling, let's make it
13 scientifically defensible. But the reason that we're
14 sampling is not to do what EPA or DOE or those folks,
15 trying to put a complete sample together; but as long
16 as we are doing sampling for those -- the initial
17 priority reasons, let's do it in a scientifically
18 reasonable way.

19 Gale, does that answer --

20 MR. BIGGS: I wanted to hear one more
21 comment here.

22 MR. SCHONBECK: I'm done.

23 MR. STOVALL: We need to go back just
24 a little bit in history on when this panel was
25 initially formed. You recall we did a literature

1 search, we looked at all the sampling studies that
2 had gone on before. And at that time there were
3 sampling studies going on by EPA and EG&G and perhaps
4 even at that time Rockwell; both on-site and
5 off-site.

6 And you will also recall that this
7 committee said, well, as kind of a validating
8 process, we can involve CSU with an overlay of
9 sampling both on-site and off-site; but in addition
10 to that, as we took this to the public, a number of
11 the public challenged Kim Risk's data. You will also
12 remember very early, probably within the first month
13 that the HAP Panel convened, that we were advised
14 that the best history out there, the best
15 chronological history of events was to go out and
16 take sediment samples and soil samples wherever we
17 thought there might be problems.

18 And as I said there has been a
19 history, a very extensive history of all that was
20 going on. But in answer to your question, Gale, why
21 did we want to go to the public on this; it was to
22 supplement all the present level of sampling that had
23 gone on, understanding that we knew there was a lot
24 of independent studies; there was EPA, CDH, EG&G,
25 DOW, and all the rest; a CSU overlay to validate --

1 attempt to validate from a quality standpoint on-site
2 and off-site.

3 But then in addition, supplement;
4 because most of the -- as you know, most of the
5 sampling that's gone on is high density around the
6 immediate site. People like yourself and others
7 said, well, how about out here; and others said, how
8 about back here; and others said how, about out
9 here?

10 And I think an additional 26, 28 sites
11 that we can now supplement and see if there is any
12 correlation with all the other studies that have gone
13 on and use this supplemental information to either
14 validate or disvalidate.

15 So, yes, it's an attempt to provide
16 credibility; but we said the first week, also, that
17 this HAP Panel had to be credible; from day one we
18 said that. And it's an awesome attempt to try to
19 maintain credibility.

20 CHAIRMAN LaVELLE: So you see that the
21 Health Advisory Panel did just about as well of
22 setting up objectives as this committee has done so
23 far.

24 MR. BIGGS: Let me ask another
25 question, then: What do we see as our end product

1 coming out of this? If we -- if we said our first
2 attempt was a literature study and to try to overlay
3 all of these things; our next one was to try to
4 review this and look at the existing sampling
5 program, and use that then to come up with both
6 supplemental as well as individual approaches to try
7 to supplement it from both a step-wise procedure as
8 well as an individualistic procedure; and -- and then
9 come up with what? Where --

10 CHAIRMAN LaVELLE: Okay.

11 MR. BIGGS: Are we going to have a
12 report coming out of our committee, a document
13 saying, here's what we did, here's how we went about
14 it, and here's our end result?

15 CHAIRMAN LaVELLE: Excellent. Okay.
16 That's real good, and that's exactly the kind of
17 questions we need to ask now. What is -- what is our
18 goal; what are our end results?

19 MR. BIGGS: We're going to say goals,
20 let's ask -- what's our end product here?

21 CHAIRMAN LaVELLE: Where are we going
22 to go to? Okay.

23 MR. BIGGS: Where are we going to go
24 with? I would see this as coming out with a written
25 report that someone is going to have to coordinate;

1 and all of us are going to have to input our position
2 section into.

3 CHAIRMAN LaVELLE: Is that a -- is
4 that agreeable? Do we want at the end of this to
5 have a written report on the efforts of the sampling
6 committee?

7 MS. ELOFSON-GARDINE: Yes.

8 MR. SCHONBECK: It's essential, I
9 think.

10 MR. BIGGS: I mean, why are we meeting
11 on this?

12 CHAIRMAN LaVELLE: This is the first
13 time we've mentioned that, though; so --

14 MR. BIGGS: Are we reporting back to
15 the HAP Panel with what we've done and why we did it
16 and why we sat here all of these weeks?

17 CHAIRMAN LaVELLE: Let's hope so.

18 MS. ELOFSON-GARDINE: I would like to
19 suggest that when we get to that point of being able
20 to undertake that, I would prefer that it be a
21 hands-on committee members only. And -- and no
22 offense to anybody else, but I do not want it done by
23 P.R. people; I want it done by people on the
24 committee.

25 CHAIRMAN LaVELLE: Okay.

1 MS. ABBOTT: No question. No
2 question. Absolutely.

3 MR. BIGGS: Well, and we are going to
4 need a lot of help from people like CDH and CSU and
5 others --

6 MS. ELOFSON-GARDINE: Yeah.

7 MR. BIGGS: -- and EG&G --

8 MS. ELOFSON-GARDINE: I want input
9 from everybody.

10 MR. BIGGS: -- giving us the input to
11 write this thing.

12 MS. ELOFSON-GARDINE: Sure. But I
13 don't want something that ends up reading like
14 standardized P.R. fluff, I want it to be a real
15 report by the people that have been sitting on the
16 committee.

17 MR. BIGGS: We're a sampling
18 committee, not a P.R. committee.

19 MS. ELOFSON-GARDINE: Right.

20 MR. BIGGS: We should be reporting
21 what we found, why we found it, what we thought, and
22 what we think of it.

23 MS. ABBOTT: And if somebody
24 disagrees, having a minority --

25 MR. BIGGS: Well, yeah, have a

1 paragraph that says, Summary; and we'll have our
2 Committee Summary; and we'll have individual
3 summaries below it -- we may have -- every committee
4 member may have some perspective they want to bring
5 out.

6 MS. ELOFSON-GARDINE: Ask for comments
7 from everybody that has participated in the
8 committee, as far as I'm concerned.

9 CHAIRMAN LaVELLE: Absolutely.

10 Okay. Those are all, I think, real
11 good ideas.

12 MR. SCHONBECK: With good ideas, so
13 that they don't get lost, perhaps we should assign
14 tasks --

15 CHAIRMAN LaVELLE: Right now?

16 MR. SCHONBECK: -- and start writing.

17 MS. ELOFSON-GARDINE: Are we to that
18 point yet, though?

19 MR. SCHONBECK: I suggest that I think
20 a history of this committee has already been written,
21 right, Ann? I saw something from you guys that -- at
22 least as a draft that came out. Some months ago I
23 got it in the mail of what -- you know, the history
24 of the meetings of this committee.

25 MS. LOCKHART: I put together a

1 history --

2 MR. SCHONBECK: Yeah.

3 MS. LOCKHART: -- of meetings and what
4 happened at each meeting, very brief.

5 MR. SCHONBECK: I think a history
6 might be useful -- not a lengthy one, but at least a
7 paper trail --

8 MS. ELOFSON-GARDINE: Well, I think we
9 were missing --

10 MR. SCHONBECK: -- and a statement of
11 goals; those things we can do now.

12 CHAIRMAN LaVELLE: We can certainly
13 start on them.

14 MR. SCHONBECK: And anything that's
15 missing, Paula, certainly we can --

16 MS. ELOFSON-GARDINE: That's --

17 MR. SCHONBECK: We have a collective
18 memory here. That's why I think we ought to start
19 writing this now, and circulate it because it will go
20 through a lot of draft phases.

21 MR. BIGGS: That's true.

22 MS. ELOFSON-GARDINE: I think we are
23 missing notes from -- I think we may have had some
24 brief meeting in September or October or November,
25 last fall. There is something in last fall, prior to

1 December, I thought, that we had had some discussion.

2 CHAIRMAN LaVELLE: I -- I don't
3 remember exactly.

4 MR. SCHONBECK: We can do --

5 MS. LOCKHART: The first meeting of
6 this group was December '3.

7 MS. ELOFSON-GARDINE: Was it December
8 the 3d?

9 MS. LOCKHART: Yeah.

10 MS. ELOFSON-GARDINE: I thought we met
11 earlier than that. Maybe I'm wrong.

12 CHAIRMAN LaVELLE: You've got me.

13 MS. ELOFSON-GARDINE: I was looking
14 back, trying to find notes or minutes or something
15 where we asked to have something supplemented. It
16 may be lost in our hundred cubic feet of documents
17 somewhere.

18 CHAIRMAN LaVELLE: It could easily
19 happen.

20 Well, do we want to follow up on
21 Niels' suggestion, now, of let's start on the history
22 of this committee? And do we have volunteers to
23 start on the history of the committee.

24 MR. SCHONBECK: Or maybe -- I would
25 say goals, first. We have been doing this for a

1 while; let's get it down.

2 CHAIRMAN Lavelle: Let's do goals,
3 first.

4 MR. BIGGS: I would like to go with
5 one expansion on Paula's comment and that is that it
6 not be written by P.R. people and our report not
7 express individual opinions except as either
8 supplements or individual authored things. In other
9 words, we want this to be a statement of what we
10 found, not what we think.

11 So the report, itself, should be
12 written as a -- a credible document with opinions
13 either attached if they feel strongly that they need
14 to be; but we're trying to present something here and
15 that's not opinions. And so, therefore, both P.R. as
16 well as internally, let's keep them out or put them
17 at the end, you know, if they feel strongly enough
18 that they need to be put in.

19 CHAIRMAN Lavelle: Okay, does that
20 cover it?

21 MS. ABBOTT: And we may find that we
22 really don't have the minority opinion or so on --

23 MR. BIGGS: We may all agree on an
24 opinion and say --

25 MS. ABBOTT: -- that everybody --

1 MR. BIGGS: -- we all agree on this
2 one.

3 And that then becomes a finding of the
4 study.

5 MS. ABBOTT: Yeah.

6 CHAIRMAN LaVELLE: Okay.

7 Okay. Is that written up there well
8 enough, individual opinions as attachments to the
9 report will include only the findings of the study
10 panel -- well, put only in there.

11 Okay. Is that all right?

12 MR. BIGGS: I'm happy.

13 MS. ELOFSON-GARDINE: I'm sure we
14 could extract a lot of this through going through in
15 a smaller group, highlighting and abstracting from
16 minutes or transcripts.

17 CHAIRMAN LaVELLE: Okay.

18 All right, good.

19 Now, shall we go on to -- to what is
20 going to be in this report we write? What do we
21 think we want in that report?

22 MR. BIGGS: Well, we started off by
23 saying we were going to take a historical look at all
24 the sampling that had gone on before. Have we done
25 that? Is that something that can now be put together

1 into a report? Who did that? Did we just kind of
2 present some little figures and say, you know, here's
3 -- here's what was done?

4 CHAIRMAN LaVELLE: If I remember, I
5 presented some little figures at one time.

6 MR. BIGGS: Yeah, we've done it, but
7 not in a really organized manner.

8 MR. SCHONBECK: Nor in a complete way.

9 MR. BIGGS: Nor in a complete way.

10 You know, we had Rob Taylor here, and
11 he showed how they were doing it. I'm sure they have
12 got that written up someplace. We can, I think, get
13 reports and then -- I hate to use the word plagiarize
14 -- edit their reports to fit into our approach that
15 we're using on it.

16 MS. ELOFSON-GARDINE: What we found
17 useful, maybe?

18 MR. BIGGS: Presumably we did a
19 literature search -- I heard those words earlier.

20 Where is that literature search?
21 Where are those documents?

22 CHAIRMAN LaVELLE: Okay. Well, let's
23 see. Can we express that in terms of an objective or
24 a goal?

25 MS. ABBOTT: Really I think the

1 literature search is such -- it wasn't that we were
2 trying to do a complete one, but that any of us -- I
3 mean Hank went through all the Broomfield records;
4 Niels went through his records that he had; and
5 Jacques Kobbs -- I think you had Jacques Kobbs at the
6 time, didn't you?

7 MR. SCHONBECK: I think Ken did.

8 MS. ABBOTT: Maybe Ken did.

9 It was just each person of Ken and
10 Niels and Hank and then if I had any -- which I
11 really didn't, it was more knowing citizens who might
12 have had some input. But each of those, coming up
13 with a list of what they had. But it wasn't a
14 complete lit. search, other than what these
15 individuals could find in their own bailiwick as
16 such.

17 MS. ELOFSON-GARDINE: He did a
18 contamination report to show particle size
19 dispersions using the aerial gamma survey, to try to
20 eliminate maybe areas that were disturbed and things
21 like that.

22 CHAIRMAN LaVELLE: Following up,
23 Paula, on something that you said before, do we want
24 this to mainly be a summary, hitting the high points
25 of past --

1 MS. ELOFSON-GARDINE: Maybe month-to-
2 month progress of what we have been working towards
3 and what we have been discussing.

4 CHAIRMAN LaVELLE: I was thinking in
5 -- specifically in terms of past sampling and other
6 studies that have been done, do we want, instead of a
7 complete survey of what's happened in interpretation;
8 instead, just a summary, sort of hitting the high
9 points that were useful in our approach to sampling?

10 MS. ELOFSON-GARDINE: I would like to
11 see that we not floss over things that we felt were
12 okay to discard; you know, that the process is
13 something that's important that we have really been
14 trying to focus on.

15 CHAIRMAN LaVELLE: Okay.

16 MS. ELOFSON-GARDINE: And I feel like
17 I -- at this point I want to make sure that we don't
18 forget something we touched on very briefly at the
19 last meeting and that was with respect to doing a
20 mass balance of releases from Rocky Flats and what
21 fraction the soil sampling or air monitoring or any
22 other monitoring down around the facility represents
23 what are our expectations -- do we believe that 98
24 percent of what's come out of the plant has blown all
25 the way to Kansas right now.

1 balance of release from the plant, no; I don't
2 believe it will.

3 MS. ELOFSON-GARDINE: What we want to
4 know right now is what's out there right now, what's
5 the chronic exposure to the local residents?

6 MS. ABBOTT: I agree.

7 MS. ELOFSON-GARDINE: That's really
8 probably what we're going to be asking is, what's out
9 there right now?

10 MS. ABBOTT: Because that's our
11 charge.

12 MR. HARRISON: But --

13 MS. ELOFSON-GARDINE: All you can look
14 for is a snapshot in time.

15 MR. HARRISON: At any point in time.
16 You aren't going to be able to use
17 your inventory to come up with anything like an
18 inventory.

19 MS. ELOFSON-GARDINE: Absolutely.

20 MR. HARRISON: How are you going to
21 measure the exposure?

22 MS. ELOFSON-GARDINE: Well, that's
23 something that we have to be working on with the
24 reconstruction force; and ask, how much does each
25 accident release, et cetera?

1 But that's not related to the direct
2 sampling. You have so many variable involved in that
3 with various, like Gale talked about, wind
4 dispersions and releases.

5 MR. HARRISON: I understand. I guess
6 I'm wondering why it's part of this discussion right
7 now then?

8 MR. BIGGS: To keep it in perspective.

9 MR. HARRISON: Okay.

10 MS. ABBOTT: So, maybe, Gale, are you
11 saying a paragraph, a page, something at the end of
12 the study stating that it is known that material
13 could have gone as far as Kansas or the Soviet Union.

14 MR. BIGGS: It may be an executive
15 summary, up front.

16 MS. ABBOTT: Pardon?

17 MR. BIGGS: It may be an executive
18 summary, up front.

19 MS. ELOFSON-GARDINE: Yes.

20 MR. BIGGS: Placing in perspective
21 where we think this committee is providing an input.
22 And it's only one little piece or one little jigsaw
23 out of a thousand-piece jigsaw puzzle.

24 MS. ELOFSON-GARDINE: That's right.

25 MR. BIGGS: So I think one of our

1 goals up there should be, keep in perspective what
2 we're doing.

3 MS. ELOFSON-GARDINE: That's right. I
4 agree.

5 CHAIRMAN LaVELLE: Okay. Well, we
6 should always do that.

7 Okay. We're not getting very far,
8 though, on where we've got to get; and that is, to
9 tell Todd how to take a sample.

10 And unless we can agree on some of
11 these kinds of objectives; that is, here's the sorts
12 of things we want to do with this data in this
13 report, we are not going to get finally towards --
14 towards being able to tell Todd exactly what to do.

15 So if we could kind of keep going back
16 to that sort of focus and try to get these objectives
17 down a little bit more.

18 We were talking about this -- we want
19 to compare some of our results with results that were
20 collected before.

21 Mike brought up the idea that samples
22 that were collected in '73 and '4 would be more
23 important comparisons than the comparisons with the
24 ongoing sampling. And I don't know if we want to --
25 to make that kind of focus in what we do or whether

1 or not that would really change how we might go about
2 sampling.

3 MR. GUILLAUME: I guess I'm a little
4 bit confused. I thought we were headed in the
5 direction -- until Ward brought it up, I had not ever
6 heard health risks brought into this discussion; and
7 so much of it was based on, What is out there; How
8 far has it gone?

9 My assumption was that we were talking
10 about a kind of like nature and extent kind of
11 problem; and now I'm hearing that maybe that's not
12 the case.

13 And there is a major distinction
14 between looking at nature and extent of, you know,
15 how far have things gone -- which is a very good
16 objective, but it's an entirely different problem to
17 bring on the fact that we're trying to talk about,
18 What is the risk now?

19 CHAIRMAN Lavelle: Uh-huh.

20 MR. GUILLAUME: And what is -- you
21 know, that, I think, is the public's main question.
22 Have I in the past been, and am I in the present
23 subjected to some adverse health risks?

24 CHAIRMAN Lavelle: Well, that's a good
25 -- that's a good point. I guess when I heard that

1 come up in the conversation, I assumed that that was
2 a step -- that going to health risks would be a step
3 beyond any report that this subcommittee would
4 produce, and that this data might be used by whoever
5 took that next step; but that that wasn't the primary
6 objective. Is that reasonable?

7 MR. BIGGS: I don't think we want to
8 open that door.

9 MR. WHICKER: I think there's -- I
10 would suggest there is an implicit assumption that
11 the total amount of plutonium is probably
12 proportional to the health risk of somebody that
13 might have lived there all that time. And that's
14 implicit.

15 I don't think you have to take that
16 step either. If you don't buy the assumption that
17 the health risk is proportional to the amount of
18 plutonium that was left by -- at a given spot, then
19 the soil sampling doesn't mean a whole lot in my
20 view; unless all you want to do is add up inventories
21 or numbers. But I think the people are concerned
22 about health risk.

23 And if -- and does anybody not agree
24 that the health risk is not proportional to the
25 amount of plutonium that's out there is at least

1 related to it in some mathematical fashion?

2 (No response.)

3 MR. WHICKER: That's -- that's what we
4 go on. That's what everything, I think, is based on,
5 here, is that there is a relationship there.

6 It's not your job to find that
7 relationship; but, clearly, if we know something
8 about the amount of plutonium in the soil at a given
9 location, I think we know something about the risk --
10 at least relative to other areas.

11 CHAIRMAN LaVELLE: Okay. That sounds
12 good.

13 (Recess.)

14 CHAIRMAN LaVELLE: If you will all
15 agree, let's -- let's think about this one again,
16 this, "Compare results with past ongoing sampling."
17 And is there something that we can say about how we
18 want to sample in order to accomplish this?

19 And I will make a specific
20 recommendation and then you can modify that however
21 you would like. My suggestion is that we take -- at
22 each location we sample, we take a very shallow
23 sample, about -- Ward, what is it you take your
24 shallowest one?

25 MR. WHICKER: A CDH scrape, as we call

1 it, is 3 to 5 millimeters --

2 CHAIRMAN LaVELLE: I was thinking --

3 MR. WHICKER: -- but the main one we
4 do is zero to 3 centimeters.

5 CHAIRMAN LaVELLE: I was thinking zero
6 to 3 centimeters surface sample and take a composite
7 down to 21 centimeters at each location.

8 And the rationale for that is that if
9 it's really an undisturbed site, most of the
10 plutonium should be in that 1 to 3 centimeters; and
11 if it has been disturbed in the past, you should
12 still pick up virtually all of the plutonium in the
13 21 centimeters.

14 MR. BIGGS: Did I hear you suggesting
15 a two-layer or three-layer approach?

16 CHAIRMAN LaVELLE: Two layers.

17 MR. BIGGS: Two layers. Okay.

18 MS. ABBOTT: However, I would love to
19 have, at the nearest eastern site where we think the
20 highest contamination would be -- and our nearest
21 testing site -- I would love to see a third one done
22 there of Dr. Johnson's dustpan approach, as much as
23 we know it, just to see how they compare.

24 CHAIRMAN LaVELLE: Okay.

25 MS. ABBOTT: That would only be for

1 one; but I just think it would be interesting to see
2 -- and especially if we could find a site -- if it
3 were correlating with a site that he had done. But I
4 don't know that we can ever pinpoint actual locations
5 where he did this.

6 CHAIRMAN LaVELLE: Uh-huh.

7 MS. ABBOTT: But I just -- I think it
8 would be interesting, especially how IT compares to
9 the 3 centimeters.

10 CHAIRMAN LaVELLE: Well, this is --
11 Bini, this is sort of an interesting, more general
12 concept. We could have a base sampling protocol that
13 we would use at every single site; and there may be
14 some other types of samples we would want to take at
15 specific locations; so that's not unreasonable.

16 So we can think about Carl Johnson's
17 approach, maybe at some sites; but can we agree on
18 that two-layered approach that I suggested or do you
19 want to modify that?

20 MR. BIGGS: When we're now going to
21 compare this to past sampling, how many -- presumably
22 early sampling was a one-layered approach through the
23 whole depth. Has there been more refined sampling
24 where you looked at four- and five-layer sampling;
25 and how would we compare it to that then?

1 CHAIRMAN LaVELLE: Yeah --

2 MR. BIGGS: How much of it has been
3 done in that more refined approach?

4 CHAIRMAN LaVELLE: It's hard to say.
5 I know almost all of what Ward and his group have
6 been collecting has included a complete layer
7 analysis of -- I don't know what is it, five or six
8 layers?

9 MR. WHICKER: We really do kind of an
10 a eight-layer approach. We do the CDH scrape, just a
11 top millimeter or two -- or 3 to 5 millimeters and
12 then we do zero to 3; and then go on down in 3
13 centimeter increments, down to 21 centimeters; so
14 there's seven layers, plus the top 3 millimeters;
15 plus we do the entire profile at each location as
16 well, where we go from zero all the way to 21 and we
17 mix that whole thing up.

18 MR. MEYER: Ward, when you do the
19 scrape, do you do that in a slightly different
20 location or zero to 3 --

21 MR. WHICKER: We do it side-by-side.

22 MR. MEYER: Side-by-side, okay.

23 MR. WHICKER: So what we're hoping to
24 do, using this approach, is to understand the
25 relationships between the levels in the different

1 layers such that we could go back and make
2 comparisons to data sets that have been done with
3 other methods; for instance, I think you guys use
4 zero to 5, don't you?

5 MR. GUILLAUME: We do both, the zero
6 to 3 and zero to 5.

7 MR. WHICKER: And CDH has done a lot
8 of work on the zero to 3 millimeters, and so on. We
9 think it will be possible, using some of our data, to
10 be able to massage other data sets and put everything
11 on a comparable basis. That was one of the reasons
12 we took great pains to look at all of these layers.

13 MR. BIGGS: So all of your work is in
14 the seven, basically -- well, eight-layer approach.

15 MR. WHICKER: Yeah.

16 MR. BIGGS: Mike, what's EG&G doing
17 now?

18 MR. GUILLAUME: We have zero to 3
19 centimeters and zero to 5 centimeters, in about sixty
20 locations; and then in about ten locations, we have a
21 ten-layer sampling approach, as well -- very similar
22 to what Ward talked about, 3 centimeters increments;
23 and we get down and increase a little bit. And the
24 total profile is about 48 inches.

25 MR. BIGGS: Okay. Tony, what about --

1 MR. HARRISON: CDH has always done top
2 quarter inch, which translates to 3 or 4 millimeters.
3 '91 was the first year that we took zero to 5
4 centimeter samples, mostly so we would have a direct
5 comparison with the EG&G data. If anything deeper
6 than 5 centimeters has been done by CDH, it was a
7 long time ago.

8 MR. BIGGS: It sounds to me like we
9 ought to have a minimum of three-layer.

10 CHAIRMAN LaVELLE: And those three
11 layers would be?

12 MR. BIGGS: The scenario it would be
13 the 3 to 5 millimeter, the first 3 or 5 -- that's, I
14 guess, where we have to debate, now, whether we are
15 going to do 3 or 5; and from there down to 21.

16 CHAIRMAN LaVELLE: So we would be then
17 trying to have data that we could compare with CDH
18 data -- that would be the 3 and 4 millimeter -- and
19 then the zero to 3, we could compare with what was
20 currently being collected by EG&G and by CSU; and
21 then we would get a depth profile also.

22 MR. BIGGS: Right. Now, I guess my
23 question at this point is, are we talking about the
24 method of collection or are we talking about the
25 method of analysis?

1 CHAIRMAN LaVELLE: We're talking about
2 the method of collection.

3 MR. BIGGS: Okay. How much more
4 difficult is it in the collection to collect every 3
5 centimeters down, and then pick out a sample of that
6 for composite; that way if we find something, we can
7 always go back and do the layered analysis later?

8 CHAIRMAN LaVELLE: Okay. So you are
9 saying collect the layers -- maintain sample
10 integrity, but do a deposit of those for the depth
11 sample.

12 MR. BIGGS: Yeah. In other words,
13 pick out a sample of the layers and do a composite of
14 the depth sample there. But then if we do find
15 something that we think is interesting, we can always
16 go back and define it and compare it directly to what
17 other people are doing.

18 CHAIRMAN LaVELLE: Ward, how difficult
19 would that be, do you think?

20 MR. WHICKER: Well, it could certainly
21 be done. The thing of it is that you have to
22 determine is how much time and effort do you have to
23 put into this? I don't know if you have ever
24 observed how we do things, but we spend a lot of time
25 taking -- doing one site, where we do all these

1 methods.

2 MR. BIGGS: But as I understand, most
3 of the work is getting the hole dug and then going
4 into the sides and things like that; and that's
5 probably, what, 80 percent of your work?

6 MR. WHICKER: Yeah.

7 MR. BIGGS: So that 80 percent is not
8 going to change, no matter how you then do it to
9 collect the samples.

10 MR. WHICKER: We -- I can't speak to
11 what your time frame is here and how much you have to
12 work with. I feel that that's fine.

13 Another option is simply to go in and
14 take a screening-level approach, where maybe you take
15 the top 3 centimeters as a first cut and do nothing
16 else but mark your location carefully; and then --

17 MR. BIGGS: And then you can always go
18 back.

19 MR. WHICKER: -- run the analysis and
20 you can go back to the same location if you see
21 something interesting.

22 MR. BIGGS: Todd, how do you feel
23 about this?

24 MR. MARGULIES: Well --

25 CHAIRMAN LaVELLE: Remember, it's

1 going to be really cold when you are out there
2 sampling.

3 MR. MARGULIES: None of that bothers
4 me. I spend half my life in the field; so in terms
5 of my personal time, it makes no difference.

6 I do however like, personally, the
7 screening approach, in that if you find something
8 that, you know, looks interesting, you can go back as
9 long as you have marked your location.

10 I think there are definitely benefits
11 to going in and doing a complete soil profile. It
12 will require an extended amount of time if at every
13 site I am creating soil profiles to 21 inches. It
14 also increases the amount of time that I am out
15 there, if I am collecting individuals from each of
16 those levels, plus compositing them; in other words,
17 having an eventual composite sample versus three,
18 six, forty-seven, however many you determine -- it
19 all can be done, that's not a problem. However, if
20 there is a goal of the committee in a time frame of,
21 we would like to get these done before Christmas,
22 before Easter -- I mean, I don't know what kind of
23 time frame we're looking at. Sure, once the ground
24 freezes, it also makes it a little more difficult in
25 terms of collecting the sample.

1 I am happy to do it whatever way the
2 committee comes up with, and try and leave my
3 personal bias out of it. I have my opinions on what
4 -- like I said, the screening technique is definitely
5 viable. There are definite advantages to collecting
6 a soil profile.

7 But I think it has to be a collective
8 decision. We have been at this for over a year. And
9 the goal is to try and produce something within a
10 certain amount of time. I think that enters into
11 your final decision.

12 CHAIRMAN LaVELLE: Normie.

13 MR. GUILLAUME: It's not just an
14 arithmetic increase in time to take those samples;
15 it's exponential --

16 THE CHAIRMAN: Right.

17 MR. GUILLAUME: -- because you increase
18 the number of containers, the paperwork, each of
19 those individual -- all of the equipment has to be
20 deconed between each one of those --

21 MR. BIGGS: The key word I heard in
22 here that really made me feel comfortable is careful
23 identification of the site so you could go back.

24 MR. GUILLAUME: Yes.

25 MR. BIGGS: That was the key word that

1 gave me comfort.

2 MR. GUILLAUME: Survey coordinates.

3 MR. MEYER: One way to think of it is
4 you have sort of archived the samples in place by
5 doing that because things aren't changing very
6 rapidly out there at this point.

7 MS. MORIN: From an administrative and
8 practical point of view, I want you to know that the
9 Health Department can only hire Todd for a certain
10 amount of time. He can't be sole-sourced, which
11 means if we make this project -- if we increase his
12 time that it's going to require for him to collect
13 the samples beyond a certain point, then we're going
14 to have to go out and take bids for people to do it.
15 And that means, again, increasing this process which
16 -- I don't know how long.

17 MR. WHICKER: How much money is
18 available for analytical work, too? I mean, I'm sure
19 you have some limits there.

20 MS. MORIN: Well, let's see what this
21 -- you know what it comes out to; and then . . .

22 CHAIRMAN LaVELLE: Okay, Bini, and
23 then Paula.

24 MS. ABBOTT: One other thing to
25 consider is where you are going to test on private

1 land, people are a lot happier for the least invasion
2 of their land as possible. For instance, Mr.
3 Sullivan, who had owned 100 acres near the proposed
4 golf course, and so on; he misunderstood and had his
5 attorney all upset because he thought they were going
6 to dig 21 deep wells on his property to test it. And
7 then when he found out that Mike and his crew were
8 going to do very little invasive work -- I mean, you
9 know, that doesn't hurt a thing -- he was much more
10 amenable to the testing.

11 And so I think if -- if this letter
12 that has to be sent out, where you do have private
13 people, that they would be much more likely to say,
14 yes, go ahead and take a 3 centimeter part and just
15 marking the site for future, rather than saying we're
16 going to be digging 1-foot holes all around.

17 MR. BIGGS: Wait a minute. I
18 understood we were digging a 1-foot hole in any case;
19 it's just a case of whether -- I mean, the last I
20 heard we were kind of leaning towards -- or I was --
21 a three-layered approach, the first few millimeters,
22 the first couple centimeters, and then a composite
23 from there down to 21.

24 MS. ABBOTT: But if you -- how are you
25 going to keep that hole then? Are you -- I'm just

1 thinking of somebody in their private yard, maybe we
2 don't hit that many except maybe old Ralston School;
3 and we're not sure exactly, you know, where that site
4 is.

5 MS. ELOFSON-GARDINE: Bury the family
6 pet there?

7 MS. ABBOTT: No, I'm wondering -- I
8 mean, then are you thinking, Gale, there would be
9 like a foot square, foot -- cubic foot hole; and then
10 in some way have just a cover over it or something?

11 MR. BIGGS: No, it would have to be
12 filled back in so that if we wanted to go back, we
13 would actually be digging another hole because that
14 one has already been disturbed. So we would have to
15 dig another one that was maybe like a few inches away
16 from it or something, or at a right angle to it to go
17 in and take a sample, if we wanted to go further.

18 MS. ABBOTT: Layer by layer.

19 MR. BIGGS: Layer by layer.

20 MR. MARSH: Actually, there is another
21 way to deal with that problem; and that is, when you
22 make our excavation, if it's a small one anyway, you
23 can put a container into the hole you have made that
24 can be removed later for continued excavation of the
25 same hole.

1 MR. BIGGS: Okay.

2 MR. MARSH: So, in other words, if you
3 dig a cubic thing and you put something in it; and
4 then --

5 MR. BIGGS: I would rather not do
6 that; because if we never go back, then --

7 MR. MARSH: -- you know where the hole
8 is if it's there.

9 MS. ELOFSON-GARDINE: And have mini-
10 landfills everywhere.

11 MS. ABBOTT: Or you can put the soil
12 back into the empty box and pull the box out.

13 MS. ELOFSON-GARDINE: I agree with
14 what Bini brought up earlier, which was, we would
15 really like to see some surface stuff samples like
16 Carl Johnson did, as a comparison at least around the
17 Walnut Creek sites that are due east of the 903 pad
18 that may be revealing.

19 I'm concerned that we not, A, increase
20 the field time too much per sample; and, B, that we
21 don't have to keep going back, because I think that
22 really complicates a lot of things. And so I'm not
23 sure what kind of a compromise we can come up with,
24 but I'm more interested in having the top 3
25 centimeters tested than a huge composite because it

1 dilutes the sample so much. So maybe we should be
2 talking about the 3-centimeter sample being the most
3 important fraction.

4 CHAIRMAN LaVELLE: Yeah. And the only
5 -- actually, the only reason that I suggested the
6 larger composite over 21 inches is that on a
7 disturbed site that zero to 3 centimeters might not
8 show much plutonium.

9 MS. ELOFSON-GARDINE: Well, but can we
10 preserve -- can we just preserve the other fractions
11 to be --

12 CHAIRMAN LaVELLE: You are saying
13 collect them, but not analyze everything.

14 MS. ELOFSON-GARDINE: Yeah, just
15 collect them so that you've got your fractions
16 separated and tagged, et cetera, and archive things;
17 and if you want to go back to them you've got it.
18 Then you don't have to go back out and do that stuff
19 all over again.

20 CHAIRMAN LaVELLE: Okay. And so let
21 me see if I can reiterate: What you are saying is
22 that we want to take the three layers that Gale
23 suggested, the zero to 3 millimeter, the zero to 3
24 centimeters, and zero to 21 centimeters at every site
25 -- and we'll do that initially. And that on some

1 sites we may do the Carl Johnson method, the ones
2 where we think we might have the highest plutonium
3 concentrations, close to the east edge of the site;
4 and that we might only analyze the surface samples,
5 at least the initial go-round.

6 MR. BIGGS: I guess I have a problem
7 with that. I would like to see us analyze the
8 composite all the way down, as well.

9 CHAIRMAN LaVELLE: The first time
10 around?

11 MR. BIGGS: We collected that, and
12 it's not that much more to do.

13 MS. ABBOTT: Each time? You think
14 even for the sites that are farther out from a nearer
15 site where you didn't see much in the zero to 3
16 centimeters?

17 MR. BIGGS: But how are we going to
18 make that decision until we start looking at the
19 results? You can't be -- you can't ask a lab to run
20 an analysis and say let us see that, and then we'll
21 make a decision on how we want to do the next one.
22 That's not practical.

23 MS. ABBOTT: Well, I didn't know if --
24 I thought if we analyzed both your sites and the
25 closer sites, first, and then as we move on out the

1 spokes of the wheel, if that would give some
2 indication so we're not throwing money, you know --
3 if we don't have to.

4 CHAIRMAN LaVELLE: Greg?

5 MR. MARSH: There is another solution
6 here. The problem is: The more samples we do, the
7 more time and money it's going to cost. There's at
8 least one way I know of to preclude some of the
9 samples validly. We have to look at what Gale
10 suggests. If we don't do what Gale suggests, we're
11 assuming that the plutonium is immobile on the
12 surface of the soil; and I haven't seen any reports
13 that suggest that plutonium cannot move in the soil.
14 In fact, I have seen just the opposite.

15 However, there are soil types, such as
16 packed clays and bentonites that would act as a
17 barrier to migration further; so maybe we should
18 consider soil constituency as a function of whether
19 or not we go to whatever level we want to go to.
20 Conceivably if there were clay on the surface, you
21 might get by with digging a 1-millimeter thick sample
22 and analyze that selectively.

23 MS. ELOFSON-GARDINE: Do you mean
24 centimeter or millimeter?

25 MR. MARSH: Millimeter. Clays are

1 generally impermeable. They are used to line all
2 kinds of things and they work pretty well until they
3 are disturbed by an earthquake or whatever. So maybe
4 we should do this -- I assume it's 21 centimeters
5 deep, not inches.

6 CHAIRMAN LaVELLE: 21 centimeters,
7 yeah.

8 MR. MARSH: You are confusing me with
9 your avoirdupois there.

10 CHAIRMAN LaVELLE: I didn't know I had
11 one of those.

12 MR. MARSH: So we go to 21 centimeters
13 unless we hit clays -- are you very familiar then,
14 Todd, with soil science and how you determine clays
15 and so on?

16 MR. MARGULIES: That's no problem.

17 MR. MARSH: Okay. That's all I have.

18 CHAIRMAN LaVELLE: Okay, let's see if
19 we can actually put something up there.

20 We want zero to 3 millimeter, we want
21 zero to 3 centimeters, and we want zero to 21
22 centimeters at every site.

23 MR. MARGULIES: Well --

24 MR. WHICKER: Here's -- I would throw
25 out one thing on the zero to 3 millimeter; and that

1 is, first of all, in all undisturbed sites that we
2 have sampled -- and we've done profiles on a couple
3 of hundred locations -- the zero to 3 centimeters is
4 always highest of the three -- or of the seven
5 regular layers, it's always been. I don't know of
6 any cases where it's not been, unless the soil was
7 disturbed.

8 The other point is that there is, in
9 our data so far, there is no significant difference
10 in activity, picocuries per gram, between the zero
11 to 3 millimeter and the zero to 3 centimeter. The
12 numbers are -- they fall right on top of each other
13 almost all the time.

14 So given that, and the fact that if
15 you do a zero to 3 millimeter scrape, that's a very
16 -- that's a very time consuming thing. We have to
17 scrape a big area, for one thing, to get the kind of
18 sample volumes we want to look at. And I would see
19 very little point in doing the zero to 3 millimeters
20 in addition to those other two, right now. I don't
21 think you are going to learn a lot.

22 MR. MEYER: The original version of
23 that was for a pretty limited number of samples. We
24 might want --

25 MR. WHICKER: Yeah.

1 MR. MEYER: -- to rethink that, if
2 that's still the idea; maybe there is a compromise.

3 CHAIRMAN LaVELLE: The zero to 3 is
4 different than the Carl Johnson method.

5 MR. WHICKER: Yeah.

6 CHAIRMAN LaVELLE: So --

7 MS. ABBOTT: By how much, really;
8 because when the dust broom, would you pick up about
9 the same amount on the whole -- I mean zero to 3 is
10 --

11 MR. BIGGS: Yeah, you -- you usually
12 do.

13 MS. ABBOTT: -- is so teeny --

14 MR. BIGGS: I think that's about a
15 dust broom approach, the zero to 3.

16 MR. HARRISON: It probably is.

17 MR. BIGGS: Because that -- you know,
18 I've done what we call dust samples; you go in and
19 sample a haul road or sample an area or something
20 like that; and that follows the standard EPA
21 technique of the dust broom approach. And I would
22 say if we do the dust broom, then we come do it
23 following EPA's methodology for collecting dust broom
24 samples. But, yeah, it's usually in the zero to 3 or
25 zero to 5 millimeter range that you are sweeping off

1 the top there.

2 CHAIRMAN LaVELLE: So, what we are
3 trying to say -- maybe we want to do this on every
4 site and this on selected sites?

5 MS. ELOFSON-GARDINE: Yes.

6 MS. ABBOTT: Yes.

7 CHAIRMAN LaVELLE: And we'll say that
8 this is synonymous, for our purposes anyway, with the
9 dust broom approach method.

10 Did you get that?

11 Terrol.

12 CHAIRMAN LaVELLE: Are we getting
13 there?

14 MR. WINSOR: Methodology aside --
15 maybe somebody could refresh my memory on the Carl
16 Johnson approach. I seem to recall -- and it's been
17 some time -- that some of discussion about his
18 approach had to do with sample preprocessing,
19 chemical preprocessing. And one might find it
20 necessary to go back to his papers and to take a look
21 at that to see if his approach is going to be
22 followed, it is followed all the way into the
23 laboratory.

24 MR. BIGGS: Not follow the EPA
25 approach?

1 MR. WINSOR: Well, the EPA approach --
2 it may be essentially the same as far as acquiring
3 the sample, itself; but is there a preprocessing
4 difference; is there some acidic preprocessing before
5 it goes to the laboratory?

6 MR. WHICKER: My recollection of what
7 he did is something on the order of trying to look at
8 respirable size particles; and I believe he did some
9 kind of sieving or sedimentation technique to refine.

10 MR. BIGGS: That's the EPA approach.
11 Basically what you do is you go out to a road and
12 measure the distance of the road and then you put
13 nail things in it; and you take half of the road and
14 you tie strings between the nails and you brush
15 within that stringed portion that follows certain
16 dimensional parameters as set out by EPA, and then
17 you collect the composite across half the road with a
18 dustpan.

19 Now, you know, this would probably be
20 a little different; but the techniques are there,
21 just to be modified to then follow Carl Johnson's
22 approach.

23 MS. ELOFSON-GARDINE: I think after he
24 did the dust broom approach, he used a little hand
25 vacuum with a HEPA filter in it that Savanna River

1 used for a period of time; and there was -- let's
2 see, what was it -- respirable -- between hazardous
3 and respirable dust on the surface of the soil report
4 that was published in -- I think it was Am. Bio. and
5 I have a copy of that and there are references
6 attached to that.

7 MR. BIGGS: EPA then takes their
8 samples and divides them into two categories, those
9 above and those below 200 million sieve --

10 MS. ELOFSON-GARDINE: I have to go
11 make a call.

12 CHAIRMAN LaVELLE: That's okay.

13 MR. HARRISON: Is dust fall, though --
14 is dust fall their way of saying soil sampling? I'm
15 not sure you are measuring the same things at all if
16 you are measuring dust fall.

17 MR. BIGGS: Well, see, when -- and
18 this is the question, we don't know that we have a
19 real answer to that at this point: That is, when you
20 get particles emitted from the facility, there are
21 routinely, other than for an episodic condition, they
22 kind of fall into two categories, windblown dust that
23 has plutonium or something attached to it or it's
24 plutonium that has gotten into the air either from
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22 kind of fall into two categories, windblown dust that
23 has plutonium or something attached to it or it's
24 plutonium that has gotten into the air either from
25 windblown sources or out of the stack.

1 That second category is extremely
2 small and it's going to attach itself to something in
3 the atmosphere. Now, primarily the particles
4 available for it to attach itself to in the
5 atmosphere is either pollen or some other kind of
6 organic matter. And pollen is, by its very nature,
7 designed to stay aloft until it hits a stagnant area
8 and then it kind of falls out.

9 So -- so when you start saying, let's
10 sweep up the surface, okay, you are now sweeping up
11 these kinds of things that have fallen out.

12 Now, in terms of looking at my sample
13 sites where I want to go out into the South Platte
14 River Valley, you know, sweeping may not be a bad
15 idea; but I guess it's been -- what I'm really
16 looking for out there is a composite of several
17 years, so I'm happy with the zero to 3 centimeters
18 approach at this point, and we see what we find. And
19 then if we start finding anything, then we get more
20 refined.

21 But, you know, close in, sweeping may
22 not be a bad idea. I don't know. It's --

23 CHAIRMAN LAVELLE: Okay. Well, it
24 sounds like we're reasonably comfortable if not
25 delirious with this sampling approach --

1 to meet the other objectives. Okay?

2 And the two that I can think of are
3 the two others we talked about for why we're sampling
4 in different locations. And one was this hypothesis
5 testing, and sometimes we've referred to this as
6 looking for hot spots.

7 Okay, we want to find out if there are
8 places where plutonium has accumulated in the past
9 and has not been sampled and, therefore, has been
10 missed. And so to accomplish this objective, will
11 this kind of sampling work? And in fact when we're
12 thinking about it, to accomplish this objective, what
13 do we have to analyze for; what detection limits to
14 we need?

15 MS. ELOFSON-GARDINE: Jim?

16 CHAIRMAN LaVELLE: Yeah.

17 MS. ELOFSON-GARDINE: Should we maybe
18 add to our list of action items for Nancy's
19 callbacks, to be getting some questions answered
20 concerning isotopic analysis?

21 CHAIRMAN LaVELLE: Talking about the
22 mass spec?

23 MS. ELOFSON-GARDINE: Yeah.

24 CHAIRMAN LaVELLE: Well --

25 MS. ELOFSON-GARDINE: We have that on

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22 mass spec?

23 MS. ELOFSON-GARDINE: Yeah.

24 CHAIRMAN LaVELLE: Well --

25 MS. ELOFSON-GARDINE: We have that on

1 CHAIRMAN LaVELLE: I agree.

2 MR. BIGGS: Strike from the agenda.

3 THE CHAIRMAN: Okay.

4 And the last thing, of course, here,
5 was the -- basically the sampling to address citizen
6 concerns, and will this sampling address those
7 concerns; and, again, what do we need to analyze for
8 and what sorts of detection limits?

9 So that's kind of the homework
10 assignment, I guess, these last two objectives we
11 haven't talked about yet, we really need to talk
12 about next time and see if they fit in to what we
13 have so far for methodology. And then we can get
14 into what we need to analyze for.

15 Okay, so it's 9:00, November 3; is
16 that right?

17 MR. MARSH: Yes.

18 MR. MEYER: Jim, one quick thing.

19 CHAIRMAN LaVELLE: Oh.

20 MR. MEYER: Two months ago RAC
21 committed to work with Paula and Greg and other folks
22 concerning plutonium uptake and vegetation database
23 sampling.

24 Marilyn Case has been working on that
25 with you folks, and I just wanted to pass out a

1 report that she had as kind of a status report. You
2 can take a look at it.

3 MS. ELOFSON-GARDINE: I haven't
4 forgotten about getting back with her about our other
5 issues. I haven't had time to upload back on to
6 that.

7 (Whereupon, the proceedings recessed
8 at 11:53 a.m., to reconvene on November 3, 1993.)

9 REPORTER'S CERTIFICATE

10 I, James L. Midyett, Certified
11 Shorthand Reporter, do hereby certify that I reported
12 the proceedings in the foregoing matter in the first
13 instance, and that later the same was reduced to
14 typewritten form through the use of computer-aided
15 transcription; I further certify that the foregoing
16 is a true and correct transcription of my
17 stenographic notes then and there taken.

18 Dated this 21st day of October, 1993.

19

20

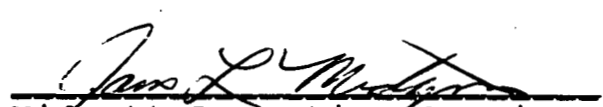
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1 And I think that that is something
2 that not be lost in the shuffle; and that is, what
3 good is this going to do us; what do we expect; what
4 may we find; and at this point, what does that
5 represent in terms of total release from the
6 facility? Because that's what's really the question
7 in most of the citizens' minds, how much is released
8 and how much may still be in the surrounding environs
9 that has not already been redistributed far beyond
10 some of the more localized areas?

11 CHAIRMAN LaVELLE: Now, we're getting
12 into, now, more of how are we going to -- how will we
13 interpret a soil finding? And if we can --

14 MS. ELOFSON-GARDINE: I realize that
15 we --

16 CHAIRMAN LaVELLE: -- suggest --

17 MS. ELOFSON-GARDINE: But it's
18 important the limitations be recognized.

19 CHAIRMAN LaVELLE: Right.

20 MS. ELOFSON-GARDINE: And that's what
21 I really want to be sure doesn't get lost in the
22 shuffle, that we're hoping that we might be able to
23 identify a few hot spots; but there needs to be some
24 kind of caveat that there is a realization that there
25 is a very severe hampering because of the time frame

1 we're looking at on what we may or may not be able to
2 find.

3 CHAIRMAN LaVELLE: And that's -- that
4 would be good. And, certainly, that would need to go
5 into anything that was in the report in terms of
6 interpreting those findings.

7 MR. BIGGS: Now that I've interrupted
8 you, can we go back? You said that you wanted some
9 people to speak about goals.

10 CHAIRMAN LaVELLE: Yes.

11 MR. BIGGS: Who have already done
12 this.

13 CHAIRMAN LaVELLE: I'm trying to --

14 MR. BIGGS: Let's move back to where
15 we were before I interrupted you then.

16 CHAIRMAN LaVELLE: Okay.

17 MR. SCHONBECK: Excuse me.

18 CHAIRMAN LaVELLE: Niels?

19 MR. SCHONBECK: I'm going to have to
20 leave now. I apologize. But I volunteer to write up
21 the first draft of the goals statement; and if
22 someone else feels that I've taken their job away
23 from them, they are certainly welcome to call me and
24 I'll release it.

25 MR. BIGGS: Gee, nice try, Niels.

1 MR. SCHONBECK: However, seeing as
2 that's probably not likely, I'll give it a first try.

3 CHAIRMAN Lavelle: Okay.

4 MR. SCHONBECK: I'll rely on the
5 transcript, and I'll start it and have it ready for
6 the next meeting; and then you guys will let me know
7 when that will be.

8 CHAIRMAN Lavelle: All right.

9 MS. ELOFSON-GARDINE: What days are
10 good for you?

11 MR. SCHONBECK: I've already given
12 that to Normie.

13 MS. MORIN: Why don't we do that right
14 now.

15 Friday, October 29th, is the next day
16 for Niels.

17 MR. SCHONBECK: Actually October or --
18 Friday, Monday, or Wednesday. It really doesn't
19 matter.

20 MS. ELOFSON-GARDINE: The last week of
21 October is very bad. We have all these things coming
22 together at the end of October.

23 MS. MORIN: Okay, Monday or Wednesday
24 the first week of November.

25 MS. ELOFSON-GARDINE: I can do

1 Wednesday, I think.

2 MR. BIGGS: The 1st or the 3d?

3 (Discussion off the record.)

4 CHAIRMAN Lavelle: Okay, Wednesday the

5 3d.

6 MS. ELOFSON-GARDINE: The time?

7 CHAIRMAN Lavelle: Do we want to do

8 7:30, Paula?

9 MS. ELOFSON-GARDINE: (Shakes head.)

10 MS. ABBOTT: She wanted 6:30.

11 MR. MEYER: That way she doesn't have

12 to go to sleep at all.

13 MS. MORIN: Niels, will 9 work for

14 you; 9 to 12?

15 MR. SCHONBECK: Yes.

16 CHAIRMAN Lavelle: Let's do 9 to 12.

17 MR. SCHONBECK: Earlier would be good

18 for me, but I can do that.

19 MR. MARSH: What time?

20 CHAIRMAN Lavelle: 9 to 12.

21 MR. SCHONBECK: I like this 8:30

22 stuff.

23 MS. ABBOTT: Except we'll be on

24 daylight savings by then and it will really be --

25 MR. SCHONBECK: Dark.

1 MS. ELOFSON-GARDINE: So that will
2 really mean we'll be here at 8:00.

3 MS. ABBOTT: We're not going to
4 mention that to you.

5 MS. ABBOTT: November 3, 9 to 12?

6 CHAIRMAN Lavelle: Yes.

7 MS. ABBOTT: And here, hopefully.

8 CHAIRMAN Lavelle: And here
9 hopefully.

10 MS. ABBOTT: Normie?

11 MS. ELOFSON-GARDINE: Sounds good.

12 CHAIRMAN Lavelle: Okay, let's go back
13 to -- my suggested goal here was to summarize some of
14 what we were talking about was that we would want a
15 summary of the useful information that had been
16 collected in the past that this committee made use of
17 in selecting sampling sites; and also as Paula
18 suggested, that would also include things that we
19 didn't think were terribly important; that we will
20 keep it more in a summary than a complete analysis.
21 Is that a reasonable goal for this?

22 MS. ELOFSON-GARDINE: I think we've
23 got a repeating theme that has occurred over time
24 with the meetings as to what was useful and what
25 wasn't useful. So I think going back and looking

1 over the transcripts and the minutes ought to --
2 ought to help us identify those things so that we can
3 come up with some kind of cohesive statement,
4 ultimately, as to how we got here from there.

5 See you, Niels.

6 (Mr. Schonbeck left the meeting.)

7 CHAIRMAN LaVELLE: That wasn't quite
8 the word I wanted to use -- choosing, especially
9 isn't the word, I guess.

10 Okay. Now, the meat, I suppose, of
11 this report is going to be how we collected samples,
12 what the results of those samples were, and what
13 kinds of interpretations we might have from those --
14 from those samples and those results.

15 So we now need to try to put what we
16 really want, I think, out of -- out of this sampling,
17 what that data we really want to use that for at the
18 end into some sort of objective and goal here. And
19 I'm certainly willing to entertain ideas about what
20 those goals might be.

21 MR. WHICKER: (Indicating.)

22 CHAIRMAN LaVELLE: Ward?

23 MR. WHICKER: Let me give you my
24 perspective on some of this because I think it ties
25 into the goals of what you want to do. I would first

1 come at this as kind of a taxpayer -- that's my other
2 hat; and if you look at the amount of money that's
3 been spent on sampling around Rocky Flats over the
4 years -- I don't know how many millions of dollars it
5 is, but it's a lot.

6 I really think that one of the best
7 goals that the CDH studies could shoot for right now
8 is to have this be the last study of its kind that
9 needs to be done. And in that vein, clearly I think
10 nothing will have more credibility in the long run
11 than getting real numbers on real samples and also on
12 real people.

13 We know from many studies that
14 virtually all of the plutonium in the environment,
15 99.99 percent, is in the soil. And we know that the
16 best record of what happened at any particular
17 location is recorded in the soil, as long as it's
18 still there and hasn't been disturbed.

19 So I think the importance of this kind
20 of sampling can't really be overemphasized.

21 The unique twist that this committee
22 can have on the whole process is the fact that it's a
23 citizens' driven committee, and you have taken
24 suggestions and ideas from the public. And what I
25 would expect is that it will probably end up

1 confirming much of the other work; and if it does so,
2 then -- then you can start to achieve some closure on
3 all of this work that has been done over the years.

4 If you come up with some surprises or
5 -- and so on, it will probably lead to more studies
6 -- not much doubt about that, and so on.

7 But, clearly, I think one of your main
8 goals then should be to compare these data in some
9 reasonable fashion with the other data sets. There
10 are a lot of ways to do that, various statistical
11 ways that can be done. And I'm sure a lot of people
12 could give you help on how to do that; but the
13 important point is that you have your own samples,
14 you collected them, you designed where they would be
15 taken, you had the laboratory of your choice do the
16 analyses, you can interpret the data, you can write
17 it up. And I really think you should do all of those
18 things.

19 And I would even shoot for doing it
20 with such quality that you could publish it in a
21 peer-reviewed, scientific publication. That would be
22 my recommendation.

23 MR. MEYER: Yeah.

24 CHAIRMAN LaVELLE: Why not?

25 MR. WHICKER: Why stop with a gray

1 literature report that's going to get buried
2 somewhere? Send it to Health Physics or Journal of
3 Environmental Quality. I'm sure you could get help
4 doing that sort of thing.

5 But that would be a tremendous service
6 and -- irregardless of what you find.

7 MR. MARSH: Can you provide us with a
8 list of recommended places that might publish it?

9 MR. WHICKER: Oh, sure. There's at
10 least five or six places you could send it. But what
11 that will do is you will get scientific peer review,
12 which you need.

13 MR. MARSH: Right.

14 MR. WHICKER: You have already said
15 one of your objectives is to do it right.

16 CHAIRMAN LaVELLE: Right.

17 MR. WHICKER: But the unique twist is
18 you have taken peoples' hunches, you have solicited
19 input, you have gone out to those locations, and you
20 haven't had -- you haven't had a big DOE contractor
21 doing it, you haven't had somebody like that --

22 MR. MARSH: Right.

23 MR. WHICKER: -- these are citizens
24 ready.

25 MR. MARSH: Right.

1 MR. WHICKER: And it's original
2 research, too.

3 CHAIRMAN LaVELLE: That's right.

4 MR. WHICKER: And you can do all sorts
5 of nice statistics that compare with other work.

6 Now, it is important that in your
7 sampling that you do it in such a way that it is
8 comparable.

9 CHAIRMAN LaVELLE: Right.

10 MR. WHICKER: And I'm sure you are
11 thinking along those lines, from what I've heard.

12 CHAIRMAN LaVELLE: I think that's real
13 good. That was kind of one of the reasons that we
14 wrote down the four for sampling, I think what Ward's
15 just brought up, was to confirm or not samples that
16 had already been taken. That was one of the reasons
17 we put down besides several of our sampling
18 locations. And so is that in fact an objective? Are
19 we doing some quality control on samples that have
20 already been taken?

21 MR. BIGGS: Well, I hate -- before we
22 get to that one, I have a real problem with where he
23 started; and that is that 99.9 percent of plutonium
24 is now in the soil. That leads you to believe that
25 all you have to do is go out and look in the soil and

1 you will find it.

2 Over the years I guess I have kind of
3 got three groupings of -- of releases from -- from
4 Rocky Flats. One of them are the episodic releases,
5 such as the fires or other kinds of accidental
6 releases; those are usually associated with other
7 kinds of releases, soot, other things associated with
8 them, that says that the plutonium probably attaches
9 fairly rapidly and falls out fairly close; and, yeah,
10 yeah, you go out in the soil you will probably find
11 that. So that I agree with.

12 The second one is that the -- the soil
13 out there has been heavily contaminated by -- such as
14 the 903 plant storing things outside, contaminating
15 the soil. And you get windblown soil.

16 And as I understand it, there are two
17 types of -- let's take plutonium -- that come off
18 from this. There is the plutonium that's attached to
19 the soil and gets blown downwind; that's probably
20 going to fallout fairly quickly and again be fairly
21 close to the plant. But if you read some of the
22 articles that have been published out there, a lot of
23 that plutonium in the soil is very, very fine
24 particles.

25 There's an article that Paula gave me

1 that said that it's so small it will pass through a
2 0.01 micron filter. This is probably -- it's what
3 they call the dispersed form of plutonium in this
4 document.

5 If that gets into the air, it's going
6 to Kansas. And then that's the third kind, the very
7 small stuff.

8 You look at the routine releases that
9 they have out there, they have gone through five
10 banks of HEPA filters. They are coming out very
11 small particles; they are going to Kansas, too. You
12 aren't going to find those in the soil around Rocky
13 Flats.

14 So when you start looking at it, there
15 are routine releases and probably the majority of
16 their soil releases are extremely small particles
17 that we're not going to find by putting in a sampling
18 program out here. So our sampling program, as I see
19 it -- soil sampling program is primarily oriented
20 towards the episodic and a portion of that windblown
21 material. We're missing in our soil sampling
22 completely the routine emissions from that facility.

23 So what I need -- I think what we need
24 to do is keep in mind what is our soil sampling
25 getting us; and what -- and what answers can we

1 derive out of these numbers that we're getting?

2 And, first off, I think we throw out
3 the routine emissions from that facility as being
4 something that we can make any comment on as a result
5 of our analysis.

6 CHAIRMAN LaVELLE: Okay. And we're
7 still -- we're still kind of jumping ahead to how
8 we're going to interpret --

9 MR. BIGGS: Yeah, exactly.

10 CHAIRMAN LaVELLE: -- these findings.

11 MR. BIGGS: But he kind of raised the
12 issue that, you know, we go out and we measure that
13 soil and we've got our answers. We don't.

14 MS. ELOFSON-GARDINE: (Shakes head.)

15 MR. BIGGS: We have a portion of our
16 answers, and we need to keep in mind what portion it
17 is that we think we can get out of this.

18 CHAIRMAN LaVELLE: And I -- I -- I
19 agree. And, certainly, this whole problem of
20 resuspension and also just modeling of small particle
21 releases and how far they go is something that's
22 going to take a lot of time for Phase II to look at;
23 and it's certainly going to be a focus of continuing
24 study.

25 MR. BIGGS: I think the major effort

1 that we need to make is -- it's not just, What did we
2 find in our soil samples, but what can we conclude
3 from them and what can't we conclude from them?

4 CHAIRMAN LaVELLE: Agreed.

5 MR. BIGGS: That's something --

6 CHAIRMAN LaVELLE: Okay.

7 MR. BIGGS: -- I think we need to
8 spend a lot of time thinking about.

9 MS. ELOFSON-GARDINE: (Nods head.)

10 CHAIRMAN LaVELLE: I agree. The
11 interpretation is always the -- the toughest part.

12 MR. BIGGS: Right.

13 CHAIRMAN LaVELLE: Going back here,
14 though, regardless of what we can interpret from
15 those studies, do we still need to -- do we want to
16 establish as an objective for the study the
17 validation or not of other sampling that has been
18 done around the plant? Is that, in fact, one of our
19 objectives?

20 MS. ELOFSON-GARDINE: In other words,
21 should we draw conclusions about that?

22 CHAIRMAN LaVELLE: In other words,
23 should --

24 MS. ELOFSON-GARDINE: I'm not real
25 comfortable with that because there are so many

1 different methodologies.

2 MR. BIGGS: I don't know that we want
3 to get into that, other than in a general way. I
4 don't think we want to state that we validated this
5 study, we agree with this study; we don't agree with
6 that study.

7 MS. ABBOTT: Because we have not done
8 that.

9 MR. BIGGS: I think it would take a
10 lot of work to go back and determine how they do
11 their work and so on and so forth.

12 I think we can make some comments on
13 like the early work was a thick sample, you know,
14 through the ground; and the technique of -- of --
15 what do you call it?

16 MS. ELOFSON-GARDINE: Templating.

17 MR. BIGGS: No, when you take several
18 samples and mix them together.

19 CHAIRMAN LaVELLE: Composite.

20 MR. BIGGS: Yes, composite. And those
21 were composites which kind of masked a lot of
22 problems one had out there and totally missed any
23 kind of hot spots.

24 Since then, I think we have seen a
25 much better resolution of this and a better way of

1 looking at layers down through the sampling. So I
2 think in a general sense we can do some of that. But
3 to then start talking about validating earlier
4 studies, that's too strong of a word for me.

5 CHAIRMAN Lavelle: Okay. I need
6 somebody to state the objective here, because it
7 seems to me like we certainly want to know that when
8 we go out and sample in an area that's already been
9 sampled, we get a value that's somewhat similar to
10 ones that have been -- have been gotten before. And
11 that's probably, from our standpoint, as well as from
12 anyone else who did the sampling's standpoint, we
13 want to have some idea that we're able to detect --

14 MS. ELOFSON-GARDINE: In other words,
15 should we be making a statement to the effect that
16 our sampling was relatively consistent with the
17 previous samples done in the area? I mean, is that
18 what you are asking for?

19 CHAIRMAN Lavelle: Well, I'm wondering
20 if that's an objective; because when we identified
21 sampling sites, we said, well, here we're doing this
22 because we want to confirm samples that have already
23 been taken of that area.

24 You see, what we're getting at, is if
25 we establish that kind -- sort of that kind of

1 objective, that tells us a little bit about what kind
2 of methods that we have to use because we have to be
3 consistent with whatever else was done out there or
4 we might not want to expect to confirm, quote
5 unquote, that sample.

6 So it's important that we establish
7 those sorts of objectives because it's going to tell
8 us something about what we have to analyze for and
9 how we have to collect in the sample, et cetera.

10 MS. ELOFSON-GARDINE: Jim, I think one
11 of the reasons we're going through this whole
12 belaboring exercise is because we have a problem with
13 what's been done before. And so with that in mind, I
14 certainly, personally -- and the other EIN directors
15 would not want to see our efforts driven back to
16 using the criteria of what did the other guys do as
17 driving the ultimate methodology that we come up with
18 -- whether or not it stands alone or not; but that
19 what we want is the most sensitive testing to be done
20 that is going to tell us whether or not something is
21 a problem area.

22 And I think that we should maybe use
23 that as a red flag that, yes, we do want to know if
24 there is some kind of validation possible; but it
25 shouldn't, certainly, preclude the independent, quote

1 unquote, part of doing what we're doing and remain
2 that way.

3 CHAIRMAN LaVELLE: Okay. See now,
4 what we're doing is you are getting into kind of the
5 sub-objectives under the big objective. That is, if
6 the big objective is we want to confirm some of the
7 samples that have been taken; and --

8 MS. ELOFSON-GARDINE: But that should
9 drive --

10 CHAIRMAN LaVELLE: -- then underneath
11 here we're going to say we're going to use this
12 methodology. Now, if somebody else used a different
13 methodology that we think is inappropriate and we
14 find the answer is different, that tells us what we
15 want to know, all right, as this committee.

16 MS. ELOFSON-GARDINE: What you are
17 asking for is some kind of a general objective
18 statement --

19 CHAIRMAN LaVELLE: A general objective
20 statement.

21 MS. ELOFSON-GARDINE: -- that we would
22 include for -- let's say, for example, Michael is
23 testing a certain area, Ward is testing another
24 certain area; Tony is trying something else over here
25 in B.F.E.; and we want to know if we test in upper

1 B.F.E., is that going to have any relationship to his
2 testing? And if we test closer over here, is that
3 going to relate to his testing or his testing?

4 There isn't any one pat answer for any
5 of those; so my suggestion is that with whatever
6 report we create is to have perhaps a
7 cross-referencing within the report that breaks it
8 down by region and who has done comparative sampling
9 and perhaps create a table that shows those
10 comparative results.

11 CHAIRMAN LaVELLE: Well, I think
12 clearly that's true. And I guess if we're going to
13 do that, then we do have an objective up there that
14 says that we want to do some confirmatory type of
15 work.

16 MS. ELOFSON-GARDINE: But that --
17 there must be footnotes that specify the different
18 methodologies.

19 CHAIRMAN LaVELLE: Bini?

20 MS. ABBOTT: It's the word "confirm"
21 that I have problems with, and I think "comparing" is
22 a better word; because "confirm" means that you are
23 saying, yes, their results were great; and we don't
24 know that we will come out with that.

25 I think what you have for Part B

1 written on the agenda is really what we're trying to
2 say, rather than to confirm --

3 CHAIRMAN LaVELLE: Uh-huh. I am --

4 MS. ABBOTT: -- or validate.

5 CHAIRMAN LaVELLE: I'm open to
6 whatever terminology.

7 MS. ABBOTT: I think what you're
8 talking about is that we want scientifically credible
9 methodology.

10 MS. ELOFSON-GARDINE: And that --

11 MS. ABBOTT: And that we will compare
12 with --

13 CHAIRMAN LaVELLE: The objective is we
14 want to have data that we can compare with samples
15 taken previously in similar locations.

16 Okay, is that --

17 MS. ELOFSON-GARDINE: I think probably
18 "compare" is probably a semantic thing; what we're
19 really saying is comparative.

20 MR. MARSH: I think we are missing
21 something major. The reason we're doing this is
22 because we don't trust what's been done already, and
23 we agree with that.

24 The reason we're doing what we've
25 chosen to do is because the philosophy of what we're

1 doing is saying we don't trust what was done before
2 because one of the ways of fudging data is to go out
3 and look for something in the wrong places. We are
4 now going out and looking for information from what
5 we feel the best places are to prove or demonstrate
6 or not demonstrate our hypothesis.

7 So our philosophy -- our fundamental
8 philosophy is different than that of the polluters;
9 and that really should be included very early on in
10 any paragraph stating our goal.

11 CHAIRMAN LaVELLE: I think you have
12 stated a second -- possibly a second objective here.

13 MR. HARRISON: I do too.

14 CHAIRMAN LaVELLE: And that is to
15 sample areas which have not been sampled previously
16 and which may be sites where there are higher
17 concentrations of plutonium.

18 MR. BIGGS: Well, that's kind of where
19 we started in the sense that we're really
20 supplementing previous studies, and trying to look
21 beyond them or differently at them.

22 CHAIRMAN LaVELLE: Is that a better
23 way to state that objective, to supplement past
24 studies with --

25 MR. MARSH: That's not an inaccurate

1 estimate, but I don't like being put in the same boat
2 with the plant and the polluters. I don't like that
3 crap. We're generating our own independent research,
4 based on the philosophy of using scientific
5 principles to target areas most likely to be
6 contaminated.

7 MR. BIGGS: I'm not sure that all of
8 those samples are based on scientific principles.

9 MS. ELOFSON-GARDINE: Yeah.

10 MR. MARSH: I think they are. I think
11 yours is a very good example.

12 MR. HARRISON: He's doing specific
13 hypothesis testing and it's a hypothesis that as far
14 as I know has never been tested before. Some of
15 these, when you were picking spots, some of them were
16 picked because there was data in that area before and
17 you wanted to know if that data was any good.

18 MR. MARSH: That's true.

19 MR. HARRISON: So I think the
20 hypothesis testing is a very good goal and a very
21 important goal, but I think some sort of language as
22 far as comparing results from locations that have
23 been sampled within some cases heavily sampled
24 before, is -- is its own goal; and I think it's an
25 important one.

1 CHAIRMAN LaVELLE: Okay. Could we
2 state up here, "Compare results with past and ongoing
3 sampling?" Is that a general objective that we can
4 all live with?

5 MR. HARRISON: I think the ongoing is
6 important.

7 I know Ward would like this to be the
8 last study. We at CDH are planning to do it again in
9 '95. And part of the reason for that is because the
10 Rocky Flats Plant hasn't closed and hasn't done
11 anything with their plutonium. And accidents are
12 always possible, and who knows what will happen
13 tomorrow? In '95, we may find that there have been
14 more releases.

15 MR. BIGGS: My question is, if they
16 start using buildings like 707 for, quote unquote,
17 cleanup, what production level are we seeing 707 go
18 back into?

19 MR. HARRISON: Sure.

20 MR. BIGGS: Is it the same production
21 level as when they were in production?

22 MS. ELOFSON-GARDINE: That's right.

23 MR. BIGGS: I have never heard that
24 answer yet.

25 MR. HARRISON: My impression is they

1 will be doing different things, but this will be busy
2 doing something.

3 MS. ELOFSON-GARDINE: What's a little
4 release of plutonium amongst friends?

5 CHAIRMAN LaVELLE: Okay. If we can
6 live with this as one objective; underneath that
7 objective we can talk, I think, more specifically now
8 about how do we go about taking a sample that will
9 achieve this goal; that is, to provide data that we
10 can, in fact, compare with data that has been
11 collected in the past and data that's currently being
12 collected and analyzed; see where we are going down
13 -- you know, hopefully we're going to make it down to
14 where we can tell Todd to go out and take the sample
15 in this way.

16 MR. GUILLAUME: There is one data set
17 that appears to me to be a little more accessible
18 than maybe some of the others. There is a
19 subcommittee of the Health Advisory Panel, and the
20 Health Advisory Panel has an ongoing investigation
21 into previous data. And their subcontractor has come
22 up with approximately 200 pieces of data prior --
23 taken prior to 1973.

24 The QA is missing on that data. All
25 the basic information -- much of that is missing on

1 that data. RAC is going to have to go in and
2 reevaluate that data set and determine how credible
3 it is.

4 And I go along with Ward that that is
5 where the wealth of the information is going to be
6 found.

7 Niels already talked about the
8 uncertainty associated with the modeling with some of
9 the monitoring data, all this other stuff that was
10 reported in the past and is only on paper. Well,
11 that data set is going to form the -- hopefully the
12 firmest data set, the firmest information that RAC is
13 going to have available to them to continue their
14 work.

15 So the validation of that data set,
16 where they have survey locations, they know where the
17 sample was taken, they know what kind of sample was
18 taken, they know what the sample methodology was --
19 they are missing some of the -- you know -- QA
20 package we talked about coming out of these
21 laboratories, that's all -- that wasn't available at
22 the time, and we don't have that. But that material
23 in most of the -- many of those locations is still
24 going to be there.

25 MR. BIGGS: Maybe we need a

1 presentation by them.

2 MS. ELOFSON-GARDINE: By who?

3 CHAIRMAN Lavelle: RAC?

4 How far along are you, Bob?

5 MR. MEYER: Well, we're in the process
6 of putting together a couple of reports that relate
7 to that for both Task IV and Task V. One of them has
8 to do with past environmental monitoring; the other
9 is recommendations for additional monitoring, Tasks
10 IV and V.

11 CHAIRMAN Lavelle: Uh-huh.

12 MR. MEYER: Until we've got those
13 completed -- and that will be later on, they are due
14 this fall. We could certainly bring somebody in to
15 talk about the status of that work, if that will be
16 helpful.

17 CHAIRMAN Lavelle: Uh-huh.

18 MR. BIGGS: Bring us up to date on
19 where you started and how far you've gone with it so
20 far.

21 MR. MEYER: Okay.

22 CHAIRMAN Lavelle: Okay.

23 MR. MEYER: You know, whenever you
24 would like to have that done.

25 CHAIRMAN Lavelle: Of course, there

1 are counter arguments to concentrating on the past;
2 and that is that once it was there and got kind of
3 worked down into the top little bit of soil, it
4 probably stayed there. So if you measured it in '73
5 and it was released in '52, it's probably still there
6 in, you know, '93.

7 So I don't know how you want to think
8 about it. But certainly I think there has been an
9 awful lot that's been done with the data from past
10 reports, the Greg Hardy Report, et cetera, et
11 cetera. So do we want to focus on that or not, I
12 guess?

13 MS. ELOFSON-GARDINE: I have to
14 reiterate something that Gale said; and that is, I
15 have a problem with statements being made over and
16 over again that if something was released at X time,
17 it's still there because with our hurricane-force
18 winds that we have seasonally here -- I mean, let's
19 be realistic here.

20 And I really feel strongly about this,
21 that those kinds of statements keep getting made at
22 various meetings, and they end up on transcripts and
23 other people that don't know any better, they believe
24 that stuff. And I really want us to keep that as an
25 in-the-back-of-your-mind caveat that that is not

1 reality in the environment that things just stay put;
2 and that there is a very serious limitation of what
3 we're trying to look at. We're basically looking for
4 a needle in a haystack here. And we're seeing if
5 there is any hot spots.

6 CHAIRMAN LaVELLE: Well, I actually
7 thought I was caveating that well by saying, once it
8 had gotten down in there and was away from any of the
9 effects, it stayed there for a long time.

10 Go ahead.

11 MR. WHICKER: I would like to respond
12 to things both of your have said there. Certainly a
13 lot of material that has been -- has been released
14 over the years, be it flowing off the 903 pad or be
15 it coming out of stacks. I totally agree that some
16 of it has gone to Kansas, some of it has gone to
17 Europe -- no question about that.

18 Nevertheless, I think the bottom line
19 here is, what is the health risk to people living in
20 this area or elsewhere? And if indeed we had
21 material that was airborne and going by somebody's
22 breathing zone, about a meter or so off the ground,
23 some fraction of that is deposited. It doesn't all
24 go to Kansas. Some fraction of the activity in the
25 air, if it's near ground level, is going to be

1 deposited; and we have a large theory for that as far
2 as deposition velocities and those kind of things.

3 So I would still back up and say that
4 I really do believe that undisturbed soil does offer
5 a good record of what went by a given point. And it
6 doesn't tell us whether it came from the 903 pad; it
7 doesn't tell us whether it came from the stacks.

8 But if there were an anomalous amount
9 that went by a particular spot and if it was in the
10 breathing zone of a person, some fraction of that
11 would -- would have left part of its signature in the
12 soil. I don't think anybody can argue with that.

13 Now, if we can determine what the
14 health risks are for this general area near Rocky
15 Flats, clearly dispersion theory would suggest that
16 by the time it gets to Kansas, it's going to be
17 greatly diluted. Of course, more people would be at
18 risk, but the individual risk would be much reduced.
19 But I think the best we can do is to try to
20 understand this risk close to home here.

21 MR. BIGGS: I don't think we're
22 disputing what you are saying.

23 MR. WHICKER: Yeah.

24 MR. BIGGS: We're just saying it needs
25 to be kept in very clear perspective.

1 MR. WHICKER: I as agree.

2 MS. ELOFSON-GARDINE: Yeah. I don't
3 disagree with what you just said, Ward; but I think
4 what Gale and I are trying to get at here is we are
5 very interested in chronic low dose ionizing
6 radiation exposure and inhalations.

7 However, the chronic deposited Pu, U,
8 americium, or any other radioisotope from Rocky Flats
9 as a chronic low dose is only one thing. That
10 doesn't account for what has blown by and exposed
11 people as it's blown by. And, yes, a fraction of
12 that has probably been deposited; but actually it's
13 probably a very low fraction that's actually been
14 deposited in the very low area. And that's what the
15 concern is that we want to keep in mind.

16 MR. WHICKER: By the way the 99.99
17 percent I spoke about was not a fraction of the total
18 stuff that went by that spot.

19 MS. ELOFSON-GARDINE: I think that's
20 what we're trying to look at.

21 MR. WHICKER: It's that that is
22 deposited, almost all of it is in the soil; the rest
23 is in plant material, maybe animals, maybe in --

24 MS. ELOFSON-GARDINE: But what we're
25 looking at here isn't just soil. But the big picture

1 is how much does that place really release in
2 accidents, releases, everything? And the soil is
3 only one -- one medium. And that's what we're really
4 looking at, how much -- what's their total mass
5 balance for release?

6 I think that's going to be far
7 different than what the soil samples might show.

8 MR. WHICKER: Of course, one of the
9 things that the soil sampling can do and what we hope
10 to do with our data is calculate inventories in soil;
11 and we would develop models that we would project out
12 in space and so on --

13 MS. ELOFSON-GARDINE: I'm very leery
14 of those kind of models.

15 MR. WHICKER: -- and compare with what
16 RAC comes up with as far as what's our best estimate
17 of these releases.

18 MS. ELOFSON-GARDINE: I don't think
19 you can do that from the soil, Ward. I would be
20 very, very concerned that somebody would take that as
21 a theoretical possibility that that's actually going
22 to be representative.

23 MR. HARRISON: But then what you are
24 saying is that this study won't address it at all.

25 MS. ELOFSON-GARDINE: Not a mass